

Amateur Radio

<http://www.cq-amateur-radio.com>

COMMUNICATIONS & TECHNOLOGY

AUGUST 2005

CQ



- **A Tale of Two Islands, pg. 13**
- **SSB Results: 2004 CQ World Wide DX Contest, p. 18**
- **New Goodies at Dayton, p. 24**
- **Digital Slow Scan TV, p. 68**

On the Cover: Two local Åland Island hams, OHØNH and OHØJEP, check out the towers at contest station OHØZ, which, as you'll see inside, did quite well in the SSB portion of last year's CQWW DX Contest. Details on page 94; more on page 13; contest results begin on page 18.

THE RADIO AMATEUR'S JOURNAL



KENWOOD

Listen to the Future



International Space Station (ISS)
TM-D700A Currently On Board

Space...the final frontier

Kenwood is proud to be the only company chosen as a participant in both the INTERNATIONAL SPACE STATION (ISS) and MIR space programs. The TM-V7A received awards from the Russian Space Agency for its flawless performance aboard MIR. The KENWOOD TM-D700A 144/440MHz FM Dual Bander is now on board the International Space Station. But is it any wonder? This world class voice and APRS® communicator has technologies which are perfect for any mission, whether on planet earth or in outer space. This all goes to show that operating a Kenwood Amateur Radio is out of this world.



KENWOOD U.S.A. CORPORATION
Communications Sector Headquarters

3975 Johns Creek Court, Suite 300, Suwanee, GA 30024-1265

Customer Support/Distribution

P.O. Box 22745, 2201 East Dominguez St., Long Beach, CA 90801-5745

Customer Support: (310) 639-4200 Fax: (310) 537-8235

INTERNET

Kenwood News & Products
<http://www.kenwood.net>

ADS#18005



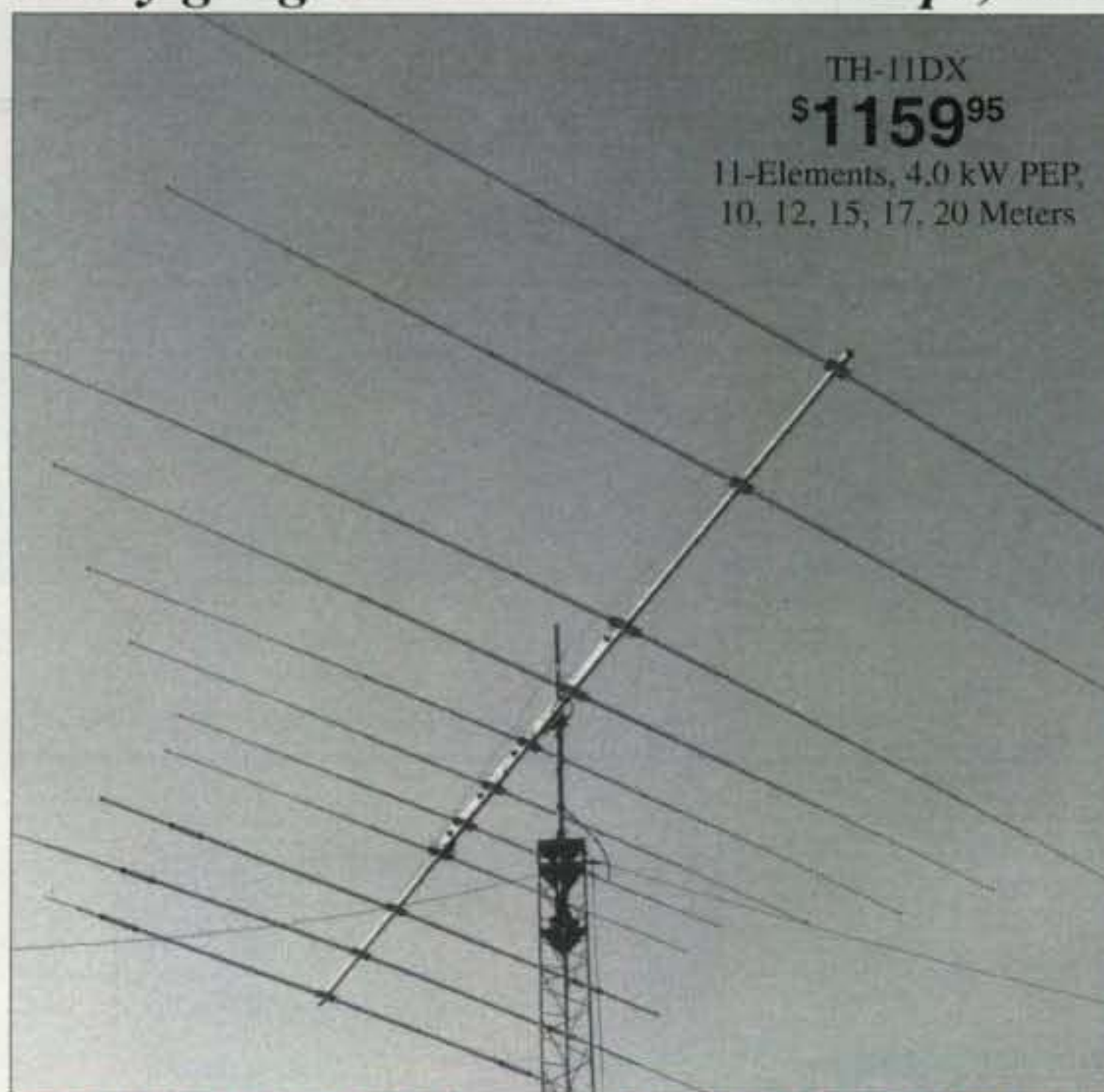
JCA 1205
ISO9001 Registered
Communications Equipment Division
Kenwood Corporation
ISO9001 certification



091-A

hy-gain® HF BEAMS...

... are stronger, lighter, have less wind surface and last years longer. Why? Hy-Gain uses durable **tooled** components -- massive boom-to-mast bracket, heavy gauge element-to-boom clamps, thick-wall swaged tubing -- virtually no failures!



TH-11DX, \$1159.95. 11-element, 4.0 kW PEP, 10,12,15,17,20M

The choice of top DXers. With 11-elements, excellent gain and 5-bands, the super rugged TH-11DX is the "Big Daddy" of all HF beams!

Handles 2000 Watts continuous, 4000 Watts PEP.

Every part is selected for durability and ruggedness for years of trouble-free service.

TH-7DX, \$869.95. 7-element, 1.5 kW PEP, 10,15,20 Meters

7-Elements gives you the highest average gain of any Hy-Gain tri-bander!

Dual driven for broadband operation without compromising gain. SWR less than 2:1 on all bands.

Uniquely combining monoband

Features a low loss log-periodic driven array on all bands with monoband reflectors, BN-4000 high power balun, corrosion resistant wire boom support, hot dipped galvanized and stainless steel parts.

Stainless steel hardware and clamps are used on all electrical connections.

and trapped parasitic elements give you an excellent F/B ratio.

Includes Hy-Gain's diecast aluminum, rugged boom-to-mast clamp, heavy gauge element-to-boom brackets, BN-86 balun. For high power, upgrade to BN-4000.

TH-5MK2, \$759.95. 5-element, 1.5 kW PEP, 10,15,20 Meters

The broadband five element TH5-MK2 gives you outstanding gain.

Separate air dielectric Hy-Q traps let you adjust for maxi-

TH-3MK4, \$469.95. 3-element, 1.5 kW PEP, 10,15,20 Meters

The super popular TH-3MK4 gives you the most gain for your money in a full-power, full-size durable Hy-Gain tri-bander!

You get an impressive average gain and a whopping average front-to-back ratio. Handles a full 1500 Watts PEP. 95 MPH wind survival.

Fits on average size lot with

TH-2MK3, \$369.95. 2-element, 1.5 kW PEP, 10,15,20 Meters

The 2-element TH-2MK3 is Hy-Gain's most economical full power (1.5kW PEP) full size tri-bander.

For just \$339.95 you can greatly increase your effective radiated power and hear far better!

EXP-14, \$599.95. 4-element, 1.5 kW PEP, 10,15,20 Meters

Revolutionary 4-element compact tri-bander lets you add 40 or 30 Meters! Has 14 foot boom and tight 17.25 foot turning radius. Fits on roof tri-pod, mast or medium duty tower.

Hy-Gain's patented broadbanding Para Sleeve gives you

imum F/B ratio on each band.

Also standard is Hy-Gain's exclusive BetaMATCH™, stainless steel hardware and compression clamps and BN-86 balun.

room to spare -- turning radius is just 15.3 feet. Four piece boom is ideal for DXpeditions. Rotates with CD-45II or HAM-IV rotator.

Features Hy-Gain BetaMatch™ for DC ground, full power Hy-Q™ traps, rugged boom-to-mast bracket and mounts on standard 2"O.D. mast. Stainless steel hardware. BN-86 balun recommended.

Ruggedly constructed, top-performing, compact 6 foot boom, tight 14.3 foot turning radius. Installs almost anywhere. Rotate with CD-45II or HAM-IV. BN-86 balun recommended.

less than 2:1 VSWR. 1.5kW PEP.

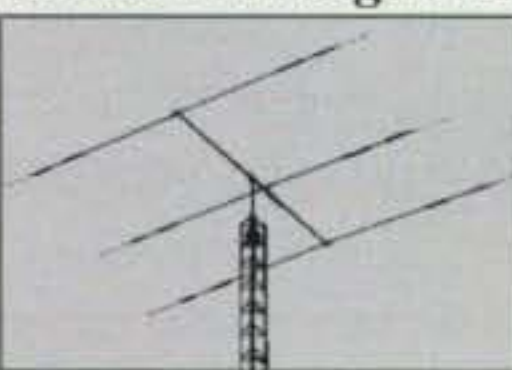
BetaMATCH™ provides DC ground to eliminate static. Includes BN-86 balun. Easily assembled.

Truly competitive against giant tri-banders at half the cost!

QK-710, \$179.95. 30/40 Meter option kit for EXP-14.

Compact 3-element 10, 15, 20 Meter Tri-Bander

For limited space... Installs anywhere... 14.75 ft turning radius... weighs 21 lbs... Rotate with CD-45II, HAM-IV



Fits on light tower, suitable guyed TV pole, roof tri-pod

TH-3JRS, \$359.95. Hy-Gain's most popular 3-element 10, 15, 20 Meter tri-bander fits on most lots! Same top performance as the full power TH3MK4 in a compact 600 watt PEP design.

Excellent gain and F/B ratio let you compete with the "big guns".

Tooled manufacturing gives you Hy-Gain durability with 80 MPH wind survival.

Model No.	No. of elements	avg gain dBd	avg F/B dB	MaxPwr watts PEP	Bands Covered	Wind sq.ft. area	Wind (mph) Survival	boom feet	Longest Elem. (ft)	Turning radius(ft)	Weight (lbs.)	Mast dia O.D.(in.)	Recom. Rotator	Sugg. Retail
TH-11DX	11	For Gain and F/B ratio--See... • www.hy-gain.com • Hy-Gain catalog • Call toll-free 800-973-6572		4000	10,12,15,17,20	12.5	100	24	37	22	88	1.9-2.5	T2X	\$1159.95
TH-7DX	7			1500	10, 15, 20	9.4	100	24	31	20	75	1.5-2.5	HAM-IV	\$869.95
TH-5MK2	5			1500	10, 15, 20	7.4	100	19	31.5	18.42	57	1.5-2.5	HAM-IV	\$759.95
TH-3MK4	3			1500	10, 15, 20	4.6	95	14	27.42	15.33	35	1.9-2.5	CD-45II	\$469.95
TH-3JRS	3			600	10, 15, 20	3.35	80	12	27.25	14.75	21	1.25-2.0	CD-45II	\$359.95
TH-2MK3	2			1500	10, 15, 20	3.25	80	6	27.3	14.25	20	1.9-2.5	CD-45II	\$369.95
EXP-14	4			1500	10,15,20 30/40	7.5	100	14	31.5	17.25	45	1.9-2.5	HAM IV	\$599.95

Tooled Manufacturing... Highest Quality Materials

1. Hy-Gain's famous super strong tooled die cast Boom-to-Mast Clamp



2. Tooled Boom-to-Element Clamp



3. Thick-wall swaged aluminum tubing



Tooled manufacturing is the difference between Hy-Gain antennas and the others -- they just don't have it (it's expensive!).

Die-cast aluminum boom-to-mast bracket and element-to-boom compression clamps are made with specially tooled machinery.

Hy-Gain antennas feature tooled swaged tubing that is easily and securely clamped in place. All tubing is deburred and cleaned for smooth and easy assembly.

Durable precision injection molded parts.

Hy-Gain antennas are stronger, lighter, have less wind surface area, better wind survival, need no adjustments, look professional and last years longer.

Free Hy-Gain Catalog
and Nearest Dealer... 800-973-6572
Call your dealer for your best price!

hy-gain®

Antennas, Rotators & Towers

308 Industrial Park Road, Starkville, MS 39759 USA

Toll-free Customer Sales Hotline: 800-973-6572

• TECH: 662-323-9538 • FAX: 662-323-6551

<http://www.hy-gain.com>

Prices and specifications subject to change without notice or obligation. © Hy-Gain®, 2004.

CQ contents

AUGUST 2005



p. 13



p. 18

features

Vol. 61 No. 8

- 13 A TALE OF TWO ISLANDS:** A first-hand account of DXing from the Åland Islands (OH0) and the Dominican Republic (HI)
By Henryk Kotowski, SM0JHF
- 18 RESULTS OF THE 2004 CQ WW DX SSB CONTEST**
By Bob Cox, K3EST
- Trophy Winners and Donors.....99
 - Top Scores.....100
 - Band-By-Band Breakdown.....101
 - Top Scores in Very Active Zones.....102
 - Scores.....103
- 22 THE HAMFEST HELMET CAM:** If you couldn't make it to this year's Dayton Hamvention®, WA5KUB made a "virtual" tour possible via the internet
By John Wood, WV5J
- 24 DAYTON 2005: YEAR OF THE (BUILT-IN) COMPUTER:** CQ's annual tour of "hot stuff at Hamvention®"
By Rich Moseson, W2VU
- 38 60 GREAT THINGS ABOUT HAM RADIO**
- 44 MATH'S NOTES:** Optical communications, Part III *By Irwin Math, WA2NDM*
- 56 WORLD OF IDEAS:** Taking it with you—ham radio, that is
By Dave Ingram, K4TWJ
- 62 MOBILING:** The Dayton Hamvention® from the mobile perspective
By Jeff Reinhardt, AA6JR
- 68 DIGITAL CONNECTION:** Some digital SSTV
By Don Rotolo, N2IRZ
- 72 QRP:** The Hamfest Buddy, a QRPp treat
By Dave Ingram, K4TWJ



p. 64

departments

- 30 WHAT'S NEW:** A ground-plane antenna, ATU, antenna switch & preamp, and more
By Karl T. Thurber, Jr., W8FX
- 48 PUBLIC SERVICE:** It's all about the message *By Bob Josuweit, WA3PZO*
- 52 WASHINGTON READOUT:** Lifetime licenses proposed for UK radio amateurs
By Frederick O. Maia, W5YI
- 64 BEGINNER'S CORNER:** Two's a couple; 30's a club!
By Wayne Yoshida, KH6WZ
- 78 VHF PLUS:** The solar myth *By Joe Lynch, N6CL*
- 82 CONTESTING:** A Dayton Hamvention® highlight *By John Dorr, K1AR*
- 88 DX:** Defining "LID" *By Carl Smith, N4AA*
- 96 AWARDS:** DX awards; K4YFH, USA-CA All Counties #1112
By Ted Melinosky, K1BV
- 95 PROPAGATION:** August conditions; DX Charts for August 15 to September 15, 2005
By Tomas Hood, NW7US



p. 22

- 4 HAM RADIO NEWS
- 8 ZERO BIAS
- 10 ANNOUNCEMENTS
- 40 READER SURVEY
- 51 OUR READERS SAY
- 112 HAM SHOP

24th Annual ARRL /TAPR Digital Communications Conference

D-STAR system up and running at DCC!

SEPT 23RD THRU 25TH - SANTA ANA CA



DIGITAL



24th Annual ARRL & TAPR Digital Communications Conference! It's time to drop everything and attend the THE international forum where today's amateur radio enthusiasts meet to develop the technology of tomorrow. Experience the DIGITAL radio revolution as well as other recent hardware and software advances, theories, and practical applications including SDR, APRS, and IEEE 802.11.

D-STAR, D-STAR, D-STAR! Join those guys from Dallas, Texas, K5TIT, and see how they are having FUN with the first D-STAR repeater system set up in the U.S.! No smoke and mirrors here, there will be a fully functional D-STAR system at the conference, complete with linked repeaters, Digital Voice/Data, and High Speed Data! See how this new system can enhance communications in your community. This is a hands-on adventure, so come to play, learn and have fun! Check out www.tapr.org/dcc.html to register or phone 972-671-TAPR (8277) for more info.

For the love of ham radio.

AMATEUR | AVIONIC | LAND MOBILE | MARINE | RECEIVER | SYSTEMS | WWW.ICOMAMERICA.COM


ICOM

IC Inventor Jack Kilby, ex-W9GTY, SK

The man who gave birth to the Information Age has died at age 81. According to the ARRL website, Jack St. Clair Kilby, formerly W9GTY, became a Silent Key in Dallas on June 20. He was awarded the Nobel Prize in Physics in 2000 for inventing the integrated circuit, the basis of modern electronic devices. The callsign W9GTY is currently held by the J.S. Kilby Digital Millennium at the U.S. Naval Postgraduate School in Monterey, California.

President Bush Applauds Hams

Saying that ham radio emergency communications "reflects the spirit of America," President George W. Bush offered his appreciation of amateur radio in a Field Day message to the ARRL. After greeting all Field Day participants, the President wrote:

Across our country, radio plays a vital role in relaying important information to the public and emergency service personnel in times of need. By providing emergency communications at the Federal, State, and local level, licensed amateur radio operators help first responders and law enforcement officials save lives and make our country safer. Your efforts help ensure the right assistance gets to the right people at the right time.

I appreciate all ham operators who give their time and energy to help make our citizens more secure. Your good work reflects the spirit of America and contributes to a culture of responsibility and citizenship that strengthens our nation.

Laura and I send our best wishes.

KP1-5 Proponents Testify Before Congress

Two members of a group of hams trying to get access to Navassa (KP1) and Desecheo (KP5) Islands, U.S. possessions in the Caribbean, testified before a House subcommittee in late May. Bob Allphin, K4UEE, and Brad Farrell, K4RT, told members of the House Subcommittee on Fisheries, Conservation, Wildlife and Oceans, that the Fish and Wildlife Service, which controls access to the islands, provided incomplete or contradictory reasons for denying access to hams.

Desecheo reportedly is closed due to danger from unexploded bombs, but Farrell said FWS never told Congress that a government demolition team came to the island in 2002 and detonated bombs that it characterized as "innocuous scrap." Navassa has been closed to protect wildlife there, according to FWS, but Allphin and Farrell said the island also "serves as a campground for Haitian fishermen with the full knowledge of Fish and Wildlife personnel ... yet, Americans who seek to enter these refuges lawfully under stringent guidelines are banned from these islands."

A bill currently in Congress, HR 1183, would require FWS to provide limited access to the islands. The group Allphin and Farrell represented, Fair Access to Island Refuges, has also taken FWS to federal court over its refusal to permit amateur radio operations from the islands.

Senate Version of Spectrum Protection Act Introduced

Idaho Senator Michael Crapo has introduced a companion bill to H.R. 691, the Amateur Radio Spectrum Protection Act of 2005, increasing the bill's chance of passage. Joining Crapo as co-sponsors of S.1236 are Senators Christopher Bond of Missouri, Max Baucus and Conrad Burns of Montana, and Daniel Akaka of Hawaii. According to the ARRL, the bill would require the FCC to provide "equivalent replacement spectrum" to the amateur services in the event that any current primary amateur spectrum is reallocated or secondary spectrum is reduced. The bill was referred to the Senate's Commerce, Science and Transportation Committee, of which Sen. Burns is a member.

BPL Suffers State Legislative Setbacks

The Nebraska state legislature has effectively banned the introduction of Broadband over Power Lines (BPL) in the state, and an effort in the Texas legislature to encourage BPL deployment there died before reaching the state House floor.

The *ARRL Letter* reports that Nebraska's legislature passed a bill banning "agencies, political subdivisions and public power suppliers" from providing any sort of internet, video or telecommunications services. The bill, which passed 37-8 with four abstentions, was expected to be signed by Governor David Heineman.

In Texas, a bill promoting BPL deployment by electric utilities passed the state Senate but failed to reach the House floor for a vote before the close of the legislative session. The *ARRL Letter* reports that legislative leaders could not iron out differences between House and Senate versions of the bill, but *Newsline* reported there was significant opposition to the appearance that it favored the state's largest utility, TXU, and would have let utilities pass costs of installing BPL on to customers without requiring them to pass on to customers a share of any profits.

ARRL "Encouraged" By Motorola BPL Technology

A new type of Access BPL (Broadband over Power Lines) introduced by Motorola has earned praise from the ARRL. The League says Motorola's system, known as Powerline LV, is the first Access BPL system "that has been designed from the start with radio interference concerns in mind." Powerline LV introduces broadband signals only on the low-voltage side of power transformers, avoiding use of the medium-voltage lines that pose the greatest interference potential, according to the ARRL. League officials stopped short of endorsing the system, noting that it had not yet been put into operation anywhere, but CEO Dave Sumner, K1ZZ, said "we look forward to seeing the first Powerline LV system in operation, and to continuing to work with Motorola to ensure that their new product is indeed the first BPL system that is a solution, not a problem."

Al Kahn, K4FW, SK

Al Kahn, K4FW, co-founder of Ten-Tec and earlier, of ElectroVoice, became a Silent Key on June 15, just weeks before his 99th birthday. A member of the CQ Amateur Radio Hall of Fame, Kahn was first licensed in 1921 and remained an active ham for the rest of his life. According to the ARRL, Kahn's daughter reported that he continued conducting regular CW schedules with ham friends until just days before his death. The family asked that contributions in Kahn's memory be made to Cass County Hospice, 310 E. Sherwood St., Decatur, MI 49405, or to the Michiana Amateur Radio Club, c/o Noel Kindt, W9EFL, 90888 Bluff Dr., Marcellus, MI 49067.



Additional and updated news is available on the Ham Radio News page of the CQ website at <<http://www.cq-amateur-radio.com>>. For breaking news stories, plus info on additional items of interest, sign up for CQ's free online newsletter service. Just click on "CQ Newsletter" on the home page of our website.

hy-gain. ROTATORS

... the first choice of hams around the world!

HAM-IV

The most popular rotator in the world!

For medium communications arrays up to 15 square feet wind load area. New 5-second brake delay! New Test/Calibrate function. New low temperature grease permits normal operation down to -30 degrees F. New alloy ring gear gives extra strength up to 100,000 PSI for maximum readability. New indicator potentiometer. New ferrite beads reduce RF susceptibility. New Cinch plug plus 8-pin plug at control box. Dual 98 ball bearing race for load bearing strength and electric locking steel wedge brake prevents wind induced antenna movement. North or South center of rotation scale on meter, low voltage control, max mast size of 2 1/16 inches.



HAM-IV
\$559⁹⁵

TAILTWISTER SERIES II

For large medium antenna arrays up to 20 sq. ft. wind load. Available with DCU-1 Pathfinder digital control (T2XD) or standard analog control box (T2X) with new 5-second brake delay and new Test/Calibrate function. Low temperature grease, alloy ring gear, indicator potentiometer, ferrite beads on potentiometer wires, new weather-proof AMP connectors plus 8-pin plug at control box, triple bearing race with 138 ball bearings for large load bearing strength, electric locking steel wedge brake, North or South center of rotation scale on meter, low voltage control, 2 1/16 inch max. mast.



T-2X
\$649⁹⁵

T-2XD
\$1029⁹⁵
with DCU-1

CD-45II

For antenna arrays up to 8.5 sq. feet mounted inside tower or 5 sq. ft. with mast adapter. Low temperature grease good to -30 F degrees. New Test/Calibrate function. Bell rotator design gives total weather protection, dual 58 ball bearing race gives proven support. Die-cast ring gear, stamped steel gear drive, heavy duty, trouble free gear train, North center scale, lighted directional indicator, 8-pin plug/socket on control unit, snap-action control switches, low voltage control, safe operation, takes maximum mast size to 2 1/16 inches. MSLD light duty lower mast support included.



CD-45II
\$389⁹⁵

HAM IV and HAM V Rotator Specifications

WindLoad capacity (inside tower)	15 square feet
Wind Load (w/ mast adapter)	7.5 square feet
Turning Power (in lbs.)	800
Brake Power (in lbs.)	5000
Brake Construction	Electric Wedge
Bearing Assembly	dual race/96 ball bearings
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	8
Shipping Weight (lbs.)	26
Effective Moment (in tower)	2800 ft/lbs.

TAILTWISTER Rotator Specifications

Wind load capacity (inside tower)	20 square feet
Wind Load (w/ mast adapter)	10 square feet
Turning Power (in lbs.)	1000
Brake Power (in lbs.)	9000
Brake Construction	Electric Wedge
Bearing Assembly	Triple race/138 ball brngs
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	8
Shipping Weight (lbs.)	31
Effective Moment (in tower)	3400 ft/lbs.

CD-45II Rotator Specifications

Wind load capacity (inside tower)	8.5 square feet
Wind Load (w/ mast adapter)	5.0 square feet
Turning Power (in lbs.)	600
Brake Power (in lbs.)	800
Brake Construction	Disc Brake
Bearing Assembly	Dual race/48 ball brngs
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	8
Shipping Weight (lbs.)	22
Effective Moment (in tower)	1200 ft/lbs.

HAM-V

HAM-V
\$949⁹⁵
with DCU-1

For medium antenna arrays up to 15 square feet wind load area. Similar to the HAM IV, but includes DCU-1 Pathfinder digital control unit with gas plasma display. Provides automatic operation of brake and rotor, compatible with many logging/contest programs, 6 presets for beam headings, 1 degree accuracy, auto 8-second brake delay, 360 degree choice for center location, more!



AR-40

\$289⁹⁵

For compact antenna arrays and large FM/TV up to 3.0 square feet wind load area. Dual 12 ball bearing race. Automatic position sensor never needs resetting. Fully automatic control -- just dial and touch for any desired location. Solid state, low voltage control, safe and silent operation. 2 1/16 inch maximum mast size. MSLD light duty lower mast support included.



AR-40

AR-40 Rotator Specifications

Wind load capacity (inside tower)	3.0 square feet
Wind Load (w/ mast adapter)	1.5 square feet
Turning Power (in lbs.)	350
Brake Power (in lbs.)	450
Brake Construction	Disc Brake
Bearing Assembly	Dual race/12 ball bearings
Mounting Hardware	Clamp plate/steel bolts
Control Cable Conductors	5
Shipping Weight (lbs.)	14
Effective Moment (in tower)	300 ft/lbs.

HDR-300A

\$1379⁹⁵

For king-sized antenna arrays up to 25 sq.ft. wind load area. Control cable connector, new hardened stainless steel output shaft, new North or South centered calibration, new ferrite beads on potentiometer wires reduce RF susceptibility, new longer output shaft keyway adds reliability. Heavy-duty self-centering steel clamp and hardware. Display accurate to 1°. Machined steel output.



HDR-300A Rotator Specifications

Wind load capacity (inside tower)	25 square feet
Wind Load (w/ mast adapter)	not applicable
Turning Power (in lbs.)	5000
Brake Power (in lbs.)	7500
Brake Construction	solenoid operated locking
Bearing Assembly	bronze sleeve w/rollers
Mounting Hardware	stainless steel bolts
Control Cable Conductors	7
Shipping Weight (lbs.)	61
Effective Moment (in tower)	5000 ft/lbs.

ROTATOR OPTIONS

MSHD, \$99.95. Heavy duty mast support for T2X, HAM-IV and HAM-V.

MSLD, \$39.95. Light duty mast support for CD-45II and AR-40.

TSP-1, \$34.95. Lower spacer plate for HAM-IV and HAM-V.

Digital Automatic Controller



Automatically controls T2X, HAM-IV, V rotators. 6 presets for favorite headings, 1 degree accuracy, 8-sec. brake delay, choice for center of rotation, crisp plasma display. Computer controlled with many logging/contest programs.



DCU-1
\$649⁹⁵

AR-35 Rotator/Controller



AR-35
\$69⁹⁵

For UHF, VHF, 6-Meter, TV/FM antennas. Includes automatic controller, rotator, mounting clamps, mounting hardware. 110 VAC. One Year Warranty.

NEW! Automatic Rotator Brake Delay

Provides automatic 5-second brake delay -- insures your rotator is fully stopped before brake is engaged. Prevents accidentally engaging brake while rotator is moving. Use with HAM II, III, IV, V, T2Xs. Easy-to-install. Includes pre-assembled PCB, hardware.

RBD-5
\$29⁹⁵

<http://www.hy-gain.com>
Nearest Dealer, Free catalog, To Order...
800-973-6572
Voice: 662-323-9538 Fax: 662-323-6551

hy-gain.

Antennas, Rotators & Towers
308 Industrial Park Road, Starkville, MS 39759, USA
Prices/specs subject to change without notice/obligation ©2004 Hy-Gain.

YOUR BRIDGE TO THE WORLD

Give Your Repeater Worldwide Coverage with WIRES™-II

WIRES-II

Wide-Coverage Internet Repeater Enhancement System

AMAZING WIRES™-II PORTABLE-TO-PORTABLE COVERAGE

VOIP BRINGS AN EXCITING NEW DIMENSION TO LONG-DISTANCE COMMUNICATION.



Expand the coverage area of your hand-held or mobile with WIRES™-II.

WiRES-II can link repeaters and base stations anywhere, using our advanced VOIP technology. Expand your club repeater's range across the nation, or even to Europe and Asia.

YOU'RE READY FOR EVERYONE-OR A SELECT FEW. WIRES-II OPEN ARCHITECTURE LETS YOU DECIDE.



Friends, Radio Group (FRG) connects multiple repeater sites using VOIP internet linking, allowing you to communicate with anyone, anywhere.



Sister Radio Group (SRG) gives you more exclusivity, letting you limit the sites you want to talk to.

If your club uses two or more repeaters to cover a wide area, these repeaters may be linked, using WIRES-II, to yield multi-site coverage as though it were one repeater. Now your hand-held or mobile can be your link to the world!

Thanks to the flexibility of the WiRES-II operating modes, you can operate in a closed system of selected node station, or you may open your repeater to access by other WIRES-II nodes anywhere in the world, depending on your preferences.

Work Worldwide DX from Your Hand-held!

Because of the large user base, you can enjoy DXing while driving to work, or from your back yard, using your hand-held radio; our VOIP technology brings you to other WiRES-II users worldwide. Just call CQ, and you will be heard in London, Tokyo, or Miami, with audio quality identical to what you'd enjoy in a local simplex contact. But thanks to VOIP, this excellent quality can be enjoyed even though the stations are separated by thousands of miles!

Minimal Equipment Requirements

Once you set up the WiRES-II in your repeater, all you need to access is the DTMF pad on your radio. The system can work with any radio that has a DTMF keypad.

Simple configuration and easy set-up.

Yaesu's experienced engineering team has made the computer interface box HRI-100 easy to set up and easy to operate, thanks to user-friendly software. The configuration requirement for WiRES-II is only a personal computer with sound board, HRI-100, mobile radio and an Internet line. We recommend a DSL or ISDN line. WiRES-II updates for more features are occasionally provided by Yaesu, and are free of charge to download from the Yaesu Web site.

WIRES™-II Amateur Radio Internet Linking Kit



HRI-100 Interface Box (Requires 12 V DC Input)



Components

- AP01 CD-ROM (Including Manual)
- Power Cable
- Data Cable (RS-232C DB-9 Plug)
- Data Cable (8-pin Mini-DIN Plug)
- Audio Cable (3.5 mm Plug) (2)
- WIRES™-II User/Server Agreement
- Optional Accessory: NC-72B AC Adapter

Work the world from your HT or mobile with WIRES™-II

- Easy connections to your PC.
 - No subscription fees.
 - Link repeaters across the continent or around the world.
 - Yaesu's exclusive, high-quality VOIP digital Internet link system.
 - Excellent voice quality.
 - Worldwide DX coverage: Nodes on over 700 locations worldwide
- (*some repeaters are for exclusive use only (SRG) and may not be accessed).

WIRES™-II Internet Linking System Requirements

- HRI-100 interface with AP CD-ROM software, data cable, audiocables.
- Compatible UHF transceiver or repeater.
- Intel MMX200 MHz CPU or faster.
- An Internet connection (56 K dial-up, ISDN, DSL, etc).
- Microsoft Windows 98SE or Later operating system.
- 30 MB of hard drive space.
- 64 MB of RAM (or more).
- CD-ROM drive.
- Monitor with 640 x 480 color with 256-bit color support on video card.
- Modem (for dial-up connections).
- Sound card with 8 kHz sampling rate (some cards may not work).

For the latest Yaesu news, visit us on the Internet:

<http://www.vxstdusa.com>

WIRES™ E-Mail Inquiries: wires@vxstdusa.com

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Check with your local Yaesu Dealer for specific details.



YAESU
Choice of the World's top DX'ers™

Vertex Standard
US Headquarters
10900 Walker Street
Cypress, CA 90630 (714)827-7600

Tougher than Tough!



YAESU's rugged new VX-120/170 Series of 2-meter Hand-helds aren't just built tough. They're submersible, have a huge, easy-to-read LCD, and they provide big, bold audio (almost 3/4 of a Watt) from the huge internal speaker!

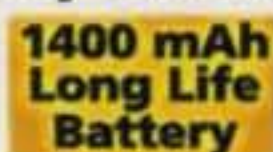
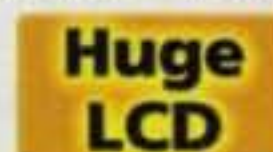


5 W Submersible Full Featured 2 m Hand-Helds
VX-120/VX-170
(8 key Version / 16 key Version)

The VX-120/VX-170 are compact, high-performance FM hand-helds providing up to five Watts of RF power, along with big audio output (700 mW) and unmatched protection against the elements!

Protected against water ingress to IPX7 specifications (submersion for up to 30 minutes at a depth of 3 feet), the VX-120/170 feature long operating times, thanks to the supplied 1400 mAh NiMH Battery Pack. The 8-key VX-120 provides the utmost in operation simplicity, while the 16-key VX-170 includes direct keyboard frequency entry and direct DTMF input. And both models provide quick, one-touch access to YAESU's exciting and fun WiRES-II™ VoIP Internet Linking system!

- Ultra-rugged 5 W 2 m Hand-helds
- Expanded RX Coverage: 137-174 MHz
- Long-life 1400 mAh NiMH Battery Pack supplied
- Enhanced Paging and Code Squelch
- User Password protects against unauthorized use
- Dedicated Weather Band Channels with Severe Weather Alert Scan
- 200 Memories with Labeling and 10 Memory Groups
- Smart Search™ Automatic Memory Loading



HANDHELD TRANSCEIVERS

5 W Ultra-Rugged,
Submersible 6 m/2 m/70 cm
Tri-Band FM Handhelds

VX-7R/VX-7RB



5 W Heavy Duty
Submersible 2 m/70 cm
Dual Band FM Handheld

VX-6R



5 W Heavy Duty
2 m/70 cm
Dual Band FM Handheld

FT-60R



1.5 W Ultra Compact
2 m/70 cm
Dual Band FM Handheld

VX-2R



Ultra-Rugged
5 W Full Featured
2 m FM Handhelds

VX-150/VX-110



Free Original WiRES-II Cap
with V/UHF FM Transceiver or HRI-100 purchase

Buy a new VX-7R/VX-6R/FT-60R/VX-2R/VX-120/VX-170/FT-8900R/FT-8800R/FT-7800R/FT-2800M/HRI-100 between now and September 30, 2005 and receive an original WiRES-II Cap free! See your Authorized YAESU Amateur Products Dealer for details.

For the latest Yaesu news, visit us on the Internet:
<http://www.vxstdusa.com>

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

YAESU
Choice of the World's top DX'ers™

Vertex Standard
US Headquarters
10900 Walker Street
Cypress, CA 90630 (714)827-7500

Who's Guarding the Henhouse?

Last December, the FCC put out a Public Notice asking interested parties to apply for membership on its Consumer Advisory Committee. The purpose of this committee, according to the Notice, is to make recommendations to the FCC "regarding consumer issues within the jurisdiction of the Commission and to facilitate the participation of consumers (including people with disabilities and underserved populations, such as American Indians and persons living in rural areas) in proceedings before the Commission."

The "consumer issues" addressed by the committee are supposed to include consumer protection and education, access to telecommunications services by people with disabilities, the impact on consumers of new and emerging technologies, and encouraging more consumer participation in the FCC rulemaking process. Committee members are supposed to come from both the public and private sectors, and "should be recognized experts in their fields." Selections would be made, according to the Notice, "on the basis of factors such as expertise and diversity of viewpoints that are necessary to address effectively the questions before the Commission." It all sounds very noble, doesn't it?

Seventy individuals and organizations applied for membership, including CQ Communications, our parent company, which also publishes *Popular Communications* and *CQ VHF*. We figured we could provide some valuable input on the impact on consumers of new and emerging technologies, offer help with encouraging more consumer participation in the FCC rulemaking process—after all, hams are without question the most active participants in FCC rulemakings that affect them—and provide a voice not only for hams but also for the "underserved" population of short-wave listeners, scanner enthusiasts and users of other two-way radio services, including CB, FRS, GMRS and MURS¹. In mid-March, we received the not-too-surprising news that we had not been among the 35 applicants appointed to the committee. A new Public Notice was enclosed, listing who had been appointed.

So who's representing the interests of consumers before the FCC? Here's a partial list: The Cellular Telecommunications and Internet Association, the Consumer Electronics Association, the National Association of Broadcasters and the National Cable and Telecommunications Association (all industry trade groups), along with Nextel, Sprint, Time Warner (read AOL), T-Mobile, and Verizon. Overall, 13 of the 35 committee members (37%) named in March represented the telecommunications industry. To be fair, the group also included a half dozen consumer advocacy groups and nine organizations and individuals who advocate for people with disabilities. But talk about the fox guarding the henhouse...

Who WASN'T Picked?

After taking a close look at who was chosen, I realized that the only FCC-regulated services with which any of the members were concerned were broadcast radio and TV (including cable), telephones (including cellular) and the internet. There was not a single person or organization representing the interests of non-broadcast radio, and I wondered who else had applied but *hadn't* been chosen. Had representatives of land-mobile, public safety, aviation, and marine radio—not to mention ham radio, CB, shortwave, GMRS, FRS, and MURS—applied and been excluded? After all, the greatest numbers of FCC licensees by far are those in the non-broadcast radio services.

Freedom of Information?

I called the FCC and asked for a list of the other applicants and their affiliations. You would have thought I'd asked the

*e-mail: <w2vu@cq-amateur-radio.com>

Pentagon for the security codes on the President's nuclear briefcase. The walls immediately went up. Sorry, but that information can't be released. Privacy concerns. If I wanted to challenge that decision, I'd need to file a Freedom of Information Act request. I did, and that began a two-month process which apparently reached fairly high up in the FCC ranks, since I got two phone calls asking for extensions of time, first from an FCC attorney and then from the Director of the Information Access and Privacy Office.

I have no idea whether my request had anything to do with this, but while it was pending, the Commission decided to name another 20 applicants to the committee, making for a total of 55 members, with only 15 applicants turned down. Among those added in the second group were consumer watchdogs AT&T and BellSouth (Cingular, Avaya and Nokia didn't make the cut, though). To no surprise at all, we were not among the second group, either.

However, to my great surprise, our Freedom of Information Act request was granted, and along with the list of the second group of appointees, I also received a list of the 15 applicants who were not chosen. I got the answer to my question of why only broadcasting, telephones and the internet were represented on the committee: Other than CQ, *no one representing the interests of non-broadcast radio users applied*. No ARRL, no APCO (law enforcement communicators), no Land Mobile Communications Council. Where were all of "our" representatives?

It would be a lot easier to make a case that the FCC was insensitive to the needs of the greatest numbers of *its* consumers—its non-broadcast licensees—had at least some of those groups applied and been turned down. But none did. In retrospect, it was probably best for the FCC to turn down *our* application, since as members of the news media it is more appropriate for us to observe and report on FCC activities than to participate in them (beyond occasionally filing comments on rulemaking matters). But where was everyone else?

Can You Hear Me Now?

That still leaves us with a big problem: 16 of the 55 members of the FCC's Consumer Advisory Committee (29%) are representatives of the industries that the FCC regulates. How can such a group properly represent consumer interests? The only larger subgroup is disability advocates, with 17 members, of whom 9 specifically represent the deaf and hearing-impaired community. This also seems like a disproportionately high number. I have no doubt that access to telecommunications services is a major concern for the deaf and hard of hearing, but they essentially have representation equal to that of general consumer advocates (10). Why are so many representatives needed to make sure their concerns are heard?

Then again, when most of the other names on the committee roster read like a "Who's Who" of the telecommunications industry, maybe the answer is obvious. And maybe they can help the FCC with its own deafness problems—selective hearing that results in a so-called Consumer Advisory Committee that's so stacked with industry representatives that the voices of the real consumers—the public—are drowned out by the noise of all the cash registers.

73, Rich, W2VU

Note

1. For the alphabet-soup deprived, CB, FRS, GMRS, and MURS stand for Citizens Band, Family Radio Service, General Mobile Radio Service, and the Multi-Use Radio Service. These are the services through which members of the general public (consumers) may make use of two-way radiocommunications.



For a complete catalog, call or visit your local dealer. Or, contact NCG Company.
1275 N. Grove Street • Anaheim • California 92806
(714) 630-4541 • (800) 962-2611 • Fax: (714) 630-7024 • www.natcomgroup.com

NEW



COMET NEW CHA-250B • Broadband HF/6M Ground-Plane Antenna
A newly designed broadband vertical with NO GROUND RADIALS. EXTREMELY easy to assemble, requires no tuning or adjustments and VSWR is under 1.5:1 from 3.5-57MHz! • TX/RX: 3.5MHz – 57MHz, 2.0 – 90MHz • VSWR: 1.5:1 or less, continuous • **Max Power: 250W SSB/125W FM**
• Impedance: 50 Ohm • Length: 23' 5" • Weight: 7 lbs. 1 oz. • Conn: SO-239 • Mast Req'd: 1" – 2" dia. • Max wind speed: 67MPH



COMET GP-16 • Tri-band 52/146/446MHz Base Repeater Antenna
• Gain & Wave: 52MHz 3.0dBi 5/8 wave • 146MHz 6.2dBi 5/8 wave x 2 • 446MHz 8.6dBi 5/8 wave x 4 • Max Pwr: 150W • Length: 7'11" • Weight: 3lbs. 1oz. • Conn: Gold-plated SO-239
• 2MHz band-width after tuning (6M) • Construction: Single-piece fiberglass



COMET CX-333 • Tri-band 146/220/446MHz Base Repeater Antenna
• Gain & Wave: 146MHz 6.5dBi 5/8 wave x 2 • 220MHz 7.8dBi 5/8 wave x 3
• 446MHz 9.0dBi 5/8 wave x 5 • Max Pwr: 120W • Length: 10'2" • Weight: 3lbs. 1oz.
• Conn: Gold-plated SO-239 • Construction: Fiberglass, 2 Sections



COMET GP-3 • Dual-band 146/446MHz Base Repeater Antenna
• Gain & Wave: 146MHz 4.5dBi 6/8 wave • 446MHz 7.2dBi 5/8 wave x 3 • Max Pwr: 200W • Length: 5'11" • Weight: 2lbs. 9ozs. • Conn: Gold-plated SO-239 • Construction: Single-piece fiberglass

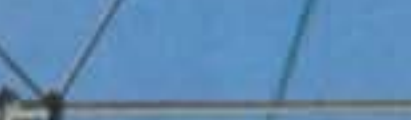


COMET GP-6 • Dual-band 146/446MHz Base Repeater Antenna
• Gain & Wave: 146MHz 6.5dBi 5/8 wave x 2 • 446MHz 9.0dBi 5/8 wave x 5 • Max Pwr: 200W • Length: 10'2" • Weight: 3lbs. 8ozs. • Conn: Gold-plated SO-239 • Construction: Fiberglass, 2 Sections



Maldol NEW HVU-8 Ultra-compact 8 band HF/HF/UHF vertical antenna
80/40/20/15/10/6/2M/70cm Only 1/2 the traditional size and weight of vertical HF antennas, and it includes 2M/70cm! Unique radial system rotates for balcony installations, the radials can all be rotated to one side. • HF and 6M: 1/4 wave-length • Gain 2M: 1/2 wave-length, 2.15dBi • Gain 70cm: Two 5/8 waves in phase, 5.5dBi • Impedance: 50 Ohm • Max Power: HF 200W SSB • 6M-70cm: 150W FM
• Conn: SO-239 • Height: Only 8'6" • Weight: 5lbs. 7ozs.

NEW



COMET GP-9/GP-9N • Dual-band 146/446MHz Base Repeater Antenna • BEST SELLER!
• Gain & Wave: 146MHz 8.5dBi 5/8 wave x 3 • 446MHz 11.9dBi 5/8 wave x 8 • Max Pwr: 200W
• Length: 17'8" • Weight: 5lbs. 11ozs. • Conn: GP-9 Gold-plated SO-239 • GP-9N Gold-plated N-type female • Construction: Fiberglass, 3 Sections



COMET GP-24 The standard high gain 2.4GHz access point antenna for maximum range/signal strength. • 2400-2500MHz • Gain: 15.4dBi • Length: 5'10" • Weight: 2lbs. 9ozs. • Conn: Gold-plated N-female • Construction: Heavy-duty white fiberglass radome



COMET GP-24-3 The same physical high gain 2.4GHz antenna as the GP-24, but with a 3-degree electrical downtilt to concentrate the signal to the horizon and below



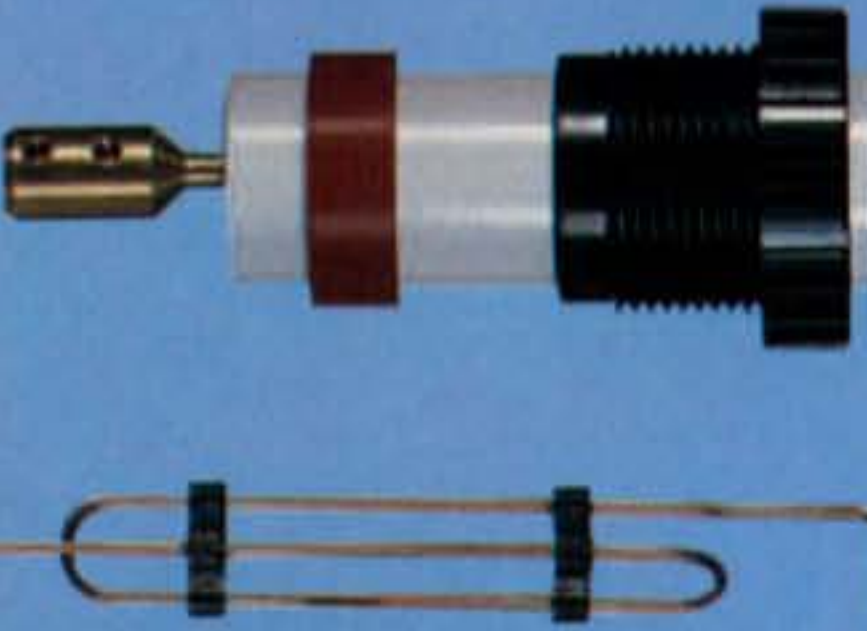
COMET GP-24-S Medium gain access point antenna for applications where maximum distance is not as important as a solid signal around and directly below the antenna. • Gain: 9.9dBi • Length: 3'9" • Weight: 1lb. 14ozs. • Conn: Gold-plated N-female • Construction: Heavy-duty white fiberglass radome



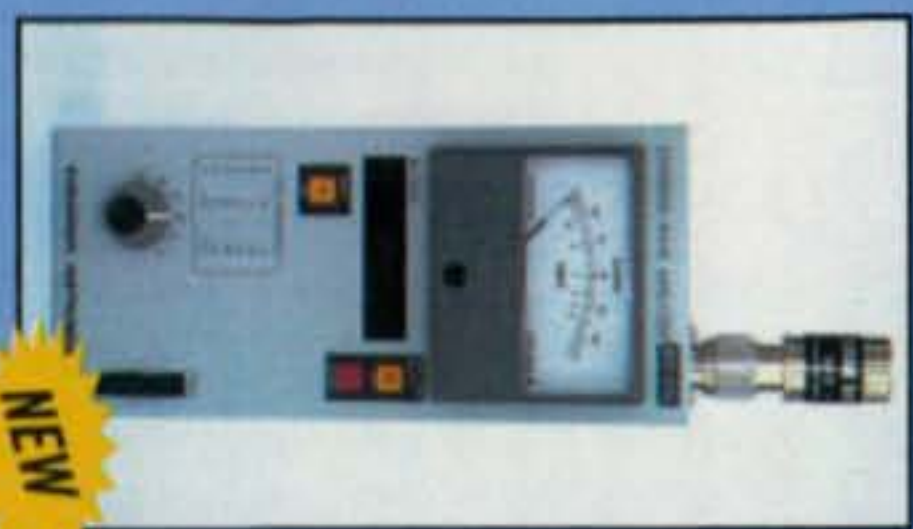
CHA-250B SWR graphed above

"One person can effortlessly raise the antenna at night when no one can spot it, and take it down before daybreak. This antenna is also a great choice for portable operations, such as quick and easy mini-DXpedition to a campground or a nice tropical island! In short, the Comet CHA-250B is simple to assemble, painless to elevate and is easy on the eyes, while at the same time getting you on 6 meters thru 80 meters without the requirement of an antenna tuner and ground radials. You'll even be able to work some DX while you're at it!" — Dan Dankert N6PEQ

Wi-Fi/802.11b/LAN/HSSM Access Point Antennas



NEW



NEW from Kuranishi Instruments LTD, Japan
BR-210 Professional-Grade SWR/Antenna Analyzer

Perform SWR and impedance measurements with confidence! The BR-210 is a laboratory grade precision test instrument providing a wide-band RF signal source for analyzing antenna systems and other equipment without the need for a separate transmitter. • 1.8-170MHz • High precision meter • 500mW 50 Ohm dummy load included • Impedance measurements: 12.5 - 300 Ohm • Connector: SO-239

COMET & Maldol
Dualband and Multiband Base Antennas

The following special event stations are scheduled to be on the air in August:

W1NY/A10, from the Massachusetts 104th Air Guard, Barnes Airport, Westfield, Massachusetts; Hampden County Radio Association; August 27 and 28, 8:30–4 PM EDT on CW 3.533, 7.033, 14.033, 18.099, 21.033, 28.033 MHz; SSB 3.860, 7.260, 14.260, 18.160, 21.360, 28.336 MHz; AM 3.885 MHz; FM 146.580 MHz; 14070 PSK. QSL to Hampden County Radio Assn; <<http://www.hcra.org/>>.

N7L, from the Yaquina Bay Lighthouse, USA-906, International Lighthouse/Lightship Weekend, August 20 & 21 from 0001Z to 2359Z on 3.521, 3.755, 7.021, 7.155+, 14.021, 14.221, 21.021, 21.221, 28.021, 28.351 MHz. For QSL, send QSL with SASE or via bureau to K7VAN, Box 12941, Salem, OR 97309.

W8AL, from Pro-Football Hall of Fame Festival, Canton, Ohio; Canton ARC; 1400Z August 5 to 0400Z August 8 on 7.265, 14.265, 21.365, 28.365 MHz. For certificate send 9 × 12 SASE to Donald E. Perry, WQ8J, 968 Colverne Ave. NW, Massillon, OH 44647 (e-mail: <depererry968@aol.com>; <www.w8al.org/>).

The following hamfests, etc., are slated for August:

Aug. 5–7, **2005 Pacific Northwest DX Convention**, Monarch Hotel, Portland, Oregon. Contact Al Rovner, K7AR, e-mail: <k7ar@arri.net>; <<http://www.wvdx.org/>>.

Aug. 6, **Tompkins ARC Finger Lakes Hamfest**, Trumansburg Fairgrounds, Trumansburg, New York. Contact Doug Reid, NE2T, e-mail: <jdreid@lightlink.com>; phone 607-257-6066; <<http://www.compcenter.com/~tcarc>>. (Talk-in 146.97; exams)

Aug. 11–14, **Young Ladies' Radio League, Inc. Convention**, Hotel Denver Tech Center, Denver, Colorado. For more information, go to: <www.ylrl.org>.

Aug. 13, **St. Cloud ARC Hamfest**, St. Cloud Armory, St. Cloud, Minnesota. Contact Fred Duke, WØDOM, e-mail: <hambone@astound.net>; phone 320-255-1410. (Talk-in 147.015; exams 12 noon)

Aug. 14, **Gloucester County ARC Hamfest**, 4-H Fairgrounds, Mullica Hill, New Jersey. Contact Harry Bryant, AA2WN, P.O. Box 496, Pennsville, NJ 08070 (1-856-678-6091). (Talk-in 146.865/.265. PL 131.8; exams 9:30 AM)

Aug. 14, **Hamfesters Radio Club Hamfest**, Will County Fairgrounds, Peotone, Illinois. Contact R. J. Morrow, KB9YRE, e-mail: <kb9yre@aol.com>; phone 708-636-0963; <www.hamfesters.org>. (Talk-in 146.52; exams 8 AM to 10:30 AM)

Aug. 19–20, **Duke City Hamfest**, University of New Mexico Continuing Education Conference Center, Albuquerque, New Mexico. Contact Mike Stuart, AC5ZO, e-mail: <ac5zo@arri.net> or <ac5zo@yahoo.com>, phone 505-890-8273 (H) and 505-323-1112 (W); <www.DukeCityHamfest.org>. (Talk-in 145.33, 444.00; exams)

Aug. 20, **SmartsFest 2005**, Kube's Restaurant, Norwood/Young America, Minnesota. Contact Don Burgess, KCØQNA, e-mail: <president@smartsonline.org>; phone 952-467-3094; <www.smartsonline.org>. (Exams)

Aug. 20, **Central Missouri Radio Assn. Hamfest & Missouri Section Convention**, Columbia, Missouri. Contact Bob Clinton, WØBUX, e-mail: <rhclinton@tranquility.net>; phone 573-696-0231. (Talk-in 146.760; exams)

Aug. 21, **Lapeer County ARA Ham & Computer Swap**, Lapeer County Center Building, Lapeer, Michigan. Contact Bill Miller, KD8VP, e-mail: <kd8vp@juno.com>; phone 810-797-5329; <www.w8lap.com>. (Talk-in 146.620, PL 100 Hz)

Aug. 21, **NoBARC Hamfest**, Adams Agricultural Fairgrounds, Adams, Massachusetts. Contact Alan Vigiard, K1SAV, e-mail: <avigiard@town.adams.ma.us>; phone (daytime) 413-743-1619.

Aug. 27–28, **West Virginia State ARRL Convention**, Convention Center, Weston, Virginia. For information e-mail: <w8xf@arri.net>.

EDITORIAL STAFF

Richard S. Moseson, W2VU, Editor
Gail M. Schieber, K2RED, Managing Editor

CONTRIBUTING EDITORS

George Jacobs, W3ASK, Contributing Ed. Emeritus

Kent Britain, WA5VJB, Antennas
Arnie Coro, CO2KK, At-Large
John Dorr, K1AR, Contesting
Tomas Hood, NW7US, Propagation
Dave Ingram, K4TWJ, Special Interests & QRP
Bob Josuweit, WA3PZO, Public Service
Joe Lynch, N6CL, VHF
Frederick O. Maia, W5YI, FCC Correspondent
Irwin Math, WA2NDM, Math's Notes
Ted Melinosky, K1BV, Awards & USA-CA
Ken Neubeck, WB2AMU, At-Large
Jeff Reinhardt, AA6JR, Mobile/Radio Magic
Don Rotolo, N2IRZ, Digital
Carl Smith, N4AA, DX
Karl T. Thurber, Jr., W8FX, What's New
Joe Veras, K9OCO, Radio Classics
Gordon West, WB6NOA, At-Large
Wayne Yoshida, KH6WZ, Beginners

AWARD MANAGEMENT

Floyd Gerald, N5FG, WAZ Award
Norman Koch, WN5N, WPX Award
Ted Melinosky, K1BV, USA-CA Award
Billy Williams, N4UF, CQ DX Award

CONTEST MANAGEMENT

Robert Cox, K3EST, WW DX Contest Director
John Lindholm, W1XX, VHF Contest Director
Steve Merchant, K6AW, WPX Contest Director
David L. Thompson, K4JRB, 160M Contest Dir.
Glenn Vinson, W6OTC, RTTY Contest Director

BUSINESS STAFF

Richard A. Ross, K2MGA, Publisher
Don Allen, W9CW, Advertising Manager
Emily Leary, Sales Assistant
Sal Del Grosso, Controller
Doris Watts, Accounting Department

CIRCULATION STAFF

Melissa Gilligan, Operations Manager
Cheryl DiLorenzo, Customer Service Manager
AnnMarie Auer, Customer Service

PRODUCTION STAFF

Elizabeth Ryan, Art Director
Barbara McGowan, Associate Art Director
Dorothy Kehrweider, Production Manager
Emily Leary, Assistant Production Mgr./Webmaster
Patricia Koh, Production Assistant
Hal Keith, Illustrator
Larry Mulvehill, WB2ZPI, Staff Photographer
Joe Veras, K9OCO, Special Projects Photographer
Doug Bailey, KØFO, Website Administrator

A publication of



CQ Communications, Inc.
25 Newbridge Road
Hicksville, NY 11801 USA.

Offices: 25 Newbridge Rd., Hicksville, NY 11801, Telephone 516-681-2922; Fax 516-681-2926. E-mail: <cq@cq-amateur-radio.com>. Web site: <www.cq-amateur-radio.com>. CQ (ISSN 0007-893X) is published monthly by CQ Communications, Inc. Periodical postage paid at Hicksville, NY 11801 and additional offices. Subscription prices (all in U.S. dollars): Domestic one year \$31.95, two years \$57.95, three years \$83.95; Canada/Mexico one year \$44.95, two years \$83.95, three years \$122.95; Foreign Air Post one year \$56.95, two years \$107.95, three years \$158.95. U.S. Government Agencies: Subscriptions to CQ are available to agencies of the United States government including military services, only on a cash with order basis. Requests for quotations, bids, contracts, etc., will be refused and will not be returned or processed. Entire contents copyrighted by CQ Communications, Inc. 2005. CQ does not assume responsibility for unsolicited manuscripts. Allow six weeks for change of address.

Printed in the U.S.A.

Postmaster: Please send change of address to:
CQ Amateur Radio, 25 Newbridge Rd., Hicksville, NY 11801



BRAWN.



BRAIN.

Other tuners fear it.

Smartuners™ are built to last. Rugged construction, superior quality components and state of the art engineering are what keep Smartuners ahead of the competition. You can use them in the most demanding installations. But they're not all brawn. The brain of the Smartuner is the microprocessor, which tunes automatically (in 10ms from memory) with up to half a million precision matches. They work with *any* antenna and *any* radio in ranges from 1.8-60 MHz and 1-500 Watts. The Smartuner is the original and still the number one choice of hams around the globe. Why choose brain or brawn? You can have both!

Stop tuning, start talking.

Visit www.sgcworld.com, call us at 206-259-7331, or contact your dealer for information on all SGC products.
SGC, Inc. 13737 SE 26th St, Bellevue, WA 98005 USA

SGC

ANAHEIM, CA
(Near Disneyland)
933 N. Euclid St., 92801
(714) 533-7373

(800) 854-6046
Janet, KL7MF, Mgr.
anaheim@hamradio.com

BURBANK, CA
2416 W. Victory Bl., 91506
(818) 842-1786
(800) 854-6046
Eric, KA6IHT, Mgr.
Victory Blvd. at Buena Vista
1 mi. west I-5
burbank@hamradio.com

OAKLAND, CA
2210 Livingston St., 94606
(510) 534-5757
(800) 854-6046
Mark, W17YN, Mgr.
I-880 at 23rd Ave. ramp
oakland@hamradio.com

SAN DIEGO, CA
5375 Kearny Villa Rd., 92123
(858) 560-4900
(800) 854-6046
Tom, KM6K, Mgr.
Hwy. 163 & Claremont Mesa
sandiego@hamradio.com

SUNNYVALE, CA
510 Lawrence Exp. #102
94085
(408) 736-9496
(800) 854-6046
Rick, N6DQ, Co-Mgr.
Howard, W6HOC, Co-Mgr.
So. from Hwy. 101
sunnyvale@hamradio.com

NEW CASTLE, DE
(Near Philadelphia)
1509 N. Dupont Hwy., 19720
(302) 322-7092
(800) 644-4476
Rick, K3TL, Mgr.
RT.13 1/4 mi., So. I-295
delaware@hamradio.com

PORTLAND, OR
11705 S.W. Pacific Hwy.
97223
(503) 598-0555
(800) 854-6046
Leon, W7AD, Mgr.
Tigard-99W exit
from Hwy. 5 & 217
portland@hamradio.com

DENVER, CO
8400 E. Iliff Ave. #9, 80231
(303) 745-7373
(800) 444-9476
Joe, KD0GA, Co-Mgr.
John N5EHP, Co-Mgr.
denver@hamradio.com

PHOENIX, AZ
1939 W. Dunlap Ave., 85021
(602) 242-3515
(800) 444-9476
Gary, N7GJ, Mgr.
1 mi. east of I-17
phoenix@hamradio.com

ATLANTA, GA
6071 Buford Hwy., 30340
(770) 263-0700
(800) 444-7927
Mark, KJ4VO, Mgr.
Doraville, 1 mi. no. of I-285
atlanta@hamradio.com

WOODBRIDGE, VA
(Near Washington D.C.)
14803 Build America Dr.
22191
(703) 643-1063
(800) 444-4799
Steve, N4SR, Mgr.
Exit 161, I-95, So. to US 1
virginia@hamradio.com

SALEM, NH
(Near Boston)
224 N. Broadway, 03079
(603) 898-3750
(800) 444-0047
Chuck, N1UC, Mgr.
Exit 1, I-93;
28 mi. No. of Boston
salem@hamradio.com

12 STORE BUYING POWER



HAM RADIO OUTLET

WORLDWIDE DISTRIBUTION

MANUFACTURER'S DAY - 8/13!

Special one day only pricing at
ALL 12 HRO STORES

Salem only; Hourly Prizes -
- Meet Mr. Reps -
- See the latest gear -
- Refreshments -
10 am-5:30 pm
(no purchase necessary)

DISCOVER THE POWER OF DSP WITH ICOM!



IC-706MKIIG All Mode Transceiver

- Proven Performance • 160-10M* / 6M/2M/70CM
- All mode w/DSP • HF/6M @ 100W, 2M @ 50W, 440 MHz @ 20W • CTCSS encode/decode w/tone scan
- Auto repeater • 107 alphanumeric memories

IC-703/Plus

- HF Plus 6M QRP
- Tuner/DSP built-in



IC-718 HF Transceiver

- 160-10M* @ 100W • 12V Operation • Simple to Use • CW Keyer Built-in • One Touch Band Switching
- Direct frequency input • VOX Built-in • Band stacking register • IF shift • 101 memories



IC-V8000 2M Mobile Transceiver

- 75 watts • Dynamic Memory Scan (DMS) • CTCSS/DCS encode/decode w/tone scan • Weather alert • Weather channel scan • 200 alphanumeric memories



IC-2100H 25N 2M Mobile Transceiver

- Cool dual display • 50 watts • CTCSS encode/decode w/tone scan • Backlit remote control mic • Mil spec • Auto repeater • 113 alphanumeric memories



IC-7800 All Mode Transceiver

- 160-6M @ 200W • Four 32 bit IF-DSPs + 24 bit AD/DA converters • Two completely independent receivers • +40dBm 3rd order intercept point



NEW IC-756PROIII All Mode Transceiver

- 160-6M • 100W • Adjustable SSB TX bandwidth • Digital voice recorder • Auto antenna tuner • RX: 30 kHz to 60 MHz • Quiet, triple-conversion receiver • 32 bit IF-DSP • Low IMD roofing filter • 8 Channel RTTY TX memory • Digital twin passband tuning • Auto or manual-adjust notch with 70 dB attenuation



IC-2720H Dual Band Mobile

- 2M/70CM • VV/UU/VU • Wide band RX inc. air & weather bands • Dynamic Memory Scan (DMS) • CTCSS/DTCS encode/decode w/tone scan • Independent controls for each band • DTMF Encode • 212 memory channels • Remote Mount Kit Inc.



IC-2200H 2M Mobile Transceiver

- 65W Output • Optional D-STAR format digital operation & NEMA Compatible GPS interface • CTCSS/DTCS encode/decode w/tone scan • 207 Alphanumeric Memories • Weather Alert



IC-746PRO All Mode 160M-2M

- 160-2M* @ 100W • 32 bit IF-DSP + 24 bit AD/DA converter • Selectable IF filter shapes for SSB & CW • Enhanced Rx performance

IC-T90A Triple Band Transceiver

- 6M/2M/70CM @ 5W • Wide band RX 495kHz - 999.999MHz** • 500 alphanumeric memories • Dynamic Memory Scan (DMS) • Backlit keypad & display • CTCSS/DTCS encode/decode w/tone scan • Weather Alert



IC-T7H Dual Band Transceiver

- 2M/70CM • 70 memory channels • 6W output • CTCSS encode/decode w/tone scan • Auto repeater • Easy operation! • Mil spec 810, C/D/E**

IC-V8 2M Transceiver

- 5.5W output • 107 alphanumeric memories • Customizable keys • Auto repeater • PC Programmable • CTCSS encode/decode w/tone scan • Drop-in trickle charger included



IC-V82 2M Transceiver

- 2M @ 7W • Optional D-STAR format digital operation features include callsign calling, up to 20 character text message, & position exchange** • CTCSS/DTCS encode/decode w/tone scan • Also available in a sport version and a 70CM version (IC-U82)

ICOM

CALL TOLL FREE

Phone Hours: 9:30 AM - 5:30 PM
Store Hours: 10:00 AM - 5:30 PM
Closed Sun.

Toll free, incl. Hawaii, Alaska, Canada; call routed to nearest store. All HRO 800-lines can assist you, if the first line you call is busy, you may call another.

West.....800-854-6046
Mountain.....800-444-9476
Southeast.....800-444-7927
Mid-Atlantic...800-444-4799
Northeast.....800-644-4476
New England...800-444-0047

Look for the
HRO Home Page
on the
World Wide Web
<http://www.hamradio.com>

AZ, CA, CO, GA,
VA residents add
sales tax. Prices,
specifications,
descriptions,
subject to change
without notice.

*Except 60M Band. **Cellular blocked, unblocked OK to FCC approved users. Offer ends Sept. 30, 2005. Check with HRO for details or restrictions. † Limited time only. Check with HRO for details or restrictions on any offers or promotions. ** For shock & vibration. *** When connected to an external GPS. © 2005 Icom America Inc. CQ Aug. 05. The Icom logo is a registered trademark of Icom Inc.

Islands ... they seem to have a magical appeal in ham radio, drawing DXpeditioners and generating the highest scores in DX contests. While some islands are hard to reach and operate from, SMØJHF takes us to a couple of islands that are both easy to access and welcoming of guest operators (yet very different from one another), where you can make your dream of "being the DX" come true.

A Tale of Two Islands

BY HENRYK KOTOWSKI,* SMØJHF

Islands seem to be favored in the world of amateur radio. Even though some of the most elaborate stations, including contest sites, are out in the country, no one has yet come up with a COTA (Countryside On The Air) award program to compete with IOTA (Islands On The Air). The majority of DXpeditions are made to islands, even though there usually are more hams per capita on islands than on the neighboring mainland. As soon as someone mentions "island" on the air, a pile-up is created. This is not fair and just, but it is a fact.

Perhaps one reason is that the most spectacular contest scores are made from islands such as Aruba (P4) in South America or Cape Verde (D4) and Ascension (ZD8) in Africa. However, the islands I wish to tell you about in this article are far less advantageous—Åland Island (OHØ) in the middle of Europe and the Dominican Republic (HI) in the Caribbean (counts as North America). They do have something in common. Both are close to continental countries that have a high level of technology and both attract many visiting amateur radio operators who influence the activities on the islands. I have visited both places a few times, and although I personally have not contributed to their growth and progress, at least I always try.

Amateur radio was restricted in both locations until the early 1960s. In the Dominican Republic, possession of any radio receiver required a license, and there were very, very few ham radio operators. Finland, of which the Åland Islands are a part, was under strong influence of the Soviet Union at that time, and the demilitarized islands were considered sensitive (see "A Closer Look" sidebars for more about both



Photo A— In the shack of Constantino, HI3CCP, in Santiago, Republica Dominicana. Constantino (sitting) is watched by Edwin, HI3NR, who is my regular cicerone, or guide, on the island and helps me meet active hams. Constantino is also a devoted collector of vintage radio equipment and his home looks like a decent radio museum. (All photos by the author)

Photo B (Shown at top)— In my rented SUV I could not get any closer to the Loma del Toro contest site atop this 3500-ft. high hill, east of Santiago, Republica Dominicana. The site is owned by Constantino, HI3CCP, and is described on the web at <www.lomadeltoro.com>.

*Sibeliussgangen 28 XI, SE-164 77 Kista, Sweden
e-mail: <jhf@chello.se>



Photo C— Ted, HI3TEJ, lives in the coastal town of Puerto Plata. Apart from being active from his well-equipped shack seen in the picture, he sometimes joins the group on the hill at Loma del Toro.

islands). Things are totally different today, and in both areas amateur radio operation is easily permitted and encouraged by the authorities. Also, visitors are granted operating privileges without difficulty, and actually the visitors generate more contest QSOs than the native operators.

Republica Dominicana

Since my first visit to the Dominican Republic, I have seen a steady increase in radio activity in general and contest activities in particular.

My first contact with the hams of Republica Dominicana was Edwin, HI3NR. I was driving around Puerto Plata on the north coast of the island, trying to find an address I had printed out from the *Callbook*. I could not see an amateur radio antenna in the neighborhood and was about to give up when a car pulled up a few yards in front of me. I asked the driver if he knew of any *radioaficionado* in this area. "I am" was the answer. Since then, every time I go to Puerto Plata Edwin helps me get in touch with local active hams.

One extremely active ham is Constantino, HI3CCP (photo A), who lives in Santiago, the major city of the northern province of the same name. Most of the Dominican cigars (which are getting better and better) originate from there. Recently Constantino has been seriously engaged in building a new Caribbean super-station on a 3500-ft. hill called Loma del Toro, east of Santiago. During my most recent visit to the island I tried to reach the top of this hill in a rented 4-wheel-drive car, but after a while I gave up (photo B). Next time.

There is a group of contesters who get together with HI3CCP for multi-operator sessions at Loma del Toro. Besides Edwin, HI3NR, there is Julio, AD4Z, who lives in Florida but holds the call-sign HI3A (previously HI3K) while back home. There is also Hiro, JA6WFM, who is staying in Santo Domingo (HI8) until October 2005, and Ted, HI3TEJ (photo C), who lives in downtown Puerto Plata, where he runs a photo studio and has a neat station of his own. I found Ted with Edwin's help (Edwin himself participates in some contests from his home QTH in the residential area in the outskirts of Puerto Plata). Contesting is on the rise in the Dominican Republic, and I predict that the HI multiplier will become common in future contest logs.

On the eastern part of the island, on a peninsula called Samaná, I visited the home and station of German hams

A Closer Look At The Dominican Republic

Discovered in 1492 by Columbus, he gave the island the name "Little Spain," or Hispaniola. The western part of the island eventually came under French control and became Haiti, exactly 200 years ago, while the eastern two thirds, then called Santo Domingo, became the Dominican Republic in 1844. The country is fertile and has a growing economy.

Amateur radio regulations have recently been reviewed and simplified. The authority in charge is called Instituto Dominicano de las Telecomunicaciones (INDOTEL) and is located in the capital, Santo Domingo. The website is at <www.indotel.org.do>. There are four classes of amateur radio license—Novicio (three-letter suffix starting with N), Técnica (three-letter suffix), General (two-letter suffix), and Superior (one-letter suffix). The national organization is called Radio Club Dominicano, Inc. It was founded nearly 80 years ago and is also located in Santo Domingo, or on the web at <www.radioclubdominicano.com>. The official listing of licensees contains over 500 callsigns. Getting a license is easy but requires a residence permit and a visit to the offices of INDOTEL. There are several clubs, local radio traffic is intense, and there are interlinked repeaters in operation.

The hurricane season is from June to October, and the island is a prime target, often suffering much damage when it takes a direct hit. Thus, if you visit in the summer or fall, keep an eye on those tropical weather maps.—SMØJHF

Erwin, DL4NCF, and his wife, Luzia, DL4NYL. They live in southern Germany but often come to their vacation home in the Dominican Republic, where they use callsigns HI9CF and HI9NY, respectively (photo D). The station is available for rent, and in recent years many European contesters have competed from there portable HI9.

The Åland Islands

The Åland archipelago has diametrically different geography, topography, climate, and propagation. While the Dominican Republic shares the island of Hispaniola with Haiti and has 9 million inhabitants, the Åland Islands consist of at least 6500 isles, islets, and skerries and have only 26 thousand permanent residents. The Dominican Republic is tropical,



Photo D— Erwin, DL4NCF, working on his antenna after the storm season in Samaná, Republica Dominicana, where he is HI9CF. The station is often used by visiting contesters and is described on the web at <www.dx-urlaub.de>.

the next best thing to a Ten-Tec Transceiver is a Ten-Tec Accessory

(800) 833-7373
www.tentec.com



Titan III – Two 4CX800A tubes, massive power supply, solid overdrive protection. Peak reading wattmeter and QSK standard. Titan III loafs at 1500 watts with 65 watts of drive. 3-year parts/labor warranty. **\$3,565**



Vee Beam Antenna – Small-sized broadband HF antenna with below 2:1 SWR from 1.8–30 or 3.5–30 MHz continuous. 250 watts maximum power. **\$249/\$239**



963 Power Supply – Hash-free switching design. 13.8 Vdc at 25 amps continuous, 30 amps peak. Small, lightweight (4 lbs!) and 90–264 VAC, 50/60 Hz input make 963 usable from anywhere. **\$169**

310 Fan Kit

Hole-free allen screw attachment to transceiver heat sink. 13.8 Vdc powered. Use with Orion, Jupiter, Pegasus, all Omnis, Corsairs, Tritons, Paragons. **\$39.95**



High Power Tuner – Superior matching capability with an L-network tuner assures correct match every time. 2000 watts CW or SSB PEP power rating. **\$545**



706 Desk Mic – Our standard communications desk mic comes ready to plug into any 4-pin-equipped Ten-Tec transceiver. Quality audio with plenty of punch. **\$99.95**



937 Power Supply – 13.8 Vdc at 11 amps for powering HF or VHF transceivers of up to 50 watts output. 115 VAC input. **\$89**



Acro-Bu – Unbreakable polycarbonate antenna hanger for coax or ladder line-fed antennas. Stainless steel hardware. **\$9.95**



Centurion – In its 16th year, this proven dual 3-500ZG design busts the pileups but won't bust your wallet. Peak reading wattmeter and QSK standard. 1300 watts. **\$2,495**



307 Speaker Series – External front-firing communications speakers, available in light grey (307G), black (307B), or charcoal grey (307C), are a terrific addition to any receiver or transceiver. Cabinet and large 4-inch speaker designed specifically for amateur radio use. **\$98**



302 Series Tuning Knobs – Armchair tuning and direct frequency entry for your Jupiter (302J), Pegasus (302), RX-350 or Orion (302R). Function buttons allow control of some radio features. **\$139**



1185 Dolly Parton Parkway
Sevierville, TN 37862
Sales Dept: 800-833-7373
Sales Dept: sales@tentec.com
Mon. – Fri. 8:00 – 5:30 EST
We accept VISA, Mastercard,
Discover, and American Express

Office: (865) 453-7172 • FAX: (865) 428-4483 • Repair Dept.: (865) 428-0364 (8 - 5 EST)



Photo E— One of the two rotary towers at the Brändö contest site in the eastern part of the Åland archipelago. Different callsigns are used by participating operators, but most often OH0B is aired. The station was built and is owned by a group from mainland Finland.



Photo F— Sture, OH0JFP, is very active in VHF competitions from his contest site outside of town. At home in Mariehamn, the main town of Åland islands, he has only a small station but has earned many contest awards. More information is on the web at <www.qsl.net/oh0jfp>.



Photo G— One of the antenna towers of Jukka, OH0V, in Geta mountain in the northern part of the main island in the Åland archipelago. Jukka's local assistant, Sture, OH0JFP, is seen here climbing the tower.

while the Ålands are at 60 degrees north latitude and are often influenced by aurora.

The local radio club, OH0AA, was founded in 1959, and the number of active hams could be counted on the fingers of both hands until the 1990s. Today there are nearly 50 licensed residents and scores of "fake" OH0's. Almost anyone can buy a callsign there for the equivalent of about \$200.

Sometime in the late 1970s, a group of testers from the Helsinki area in mainland Finland built a serious contest site on a small island called Brändö in the eastern part of the archipelago (photo E). For the 1982 CQ WW contests the islands were invaded by a crowd of 50 operators from Finland using the callsign OH0W in the multi-multi category. Ever since then it has been hard to miss the OH0 multiplier in any major contest.

Native islanders prefer VHF contests. My *cicerone* (guide) on the Åland is Sture, OH0JFP (photo F), who is very serious about regional VHF competitions. I met him in 1997 in Stockholm while he was looking for components for his club station. As there is virtually no industry on Åland, everything must be brought from the mainland.

Sture, OH0JFP, assists Jukka, OH6LI, who has set up a small contest station in the northern part of the main island (photo G). Jukka holds the callsign OH0V on Åland. Another contest station in the same area, known as OH0Z (photo H and this issue's cover), built and owned by a group of Helsinki

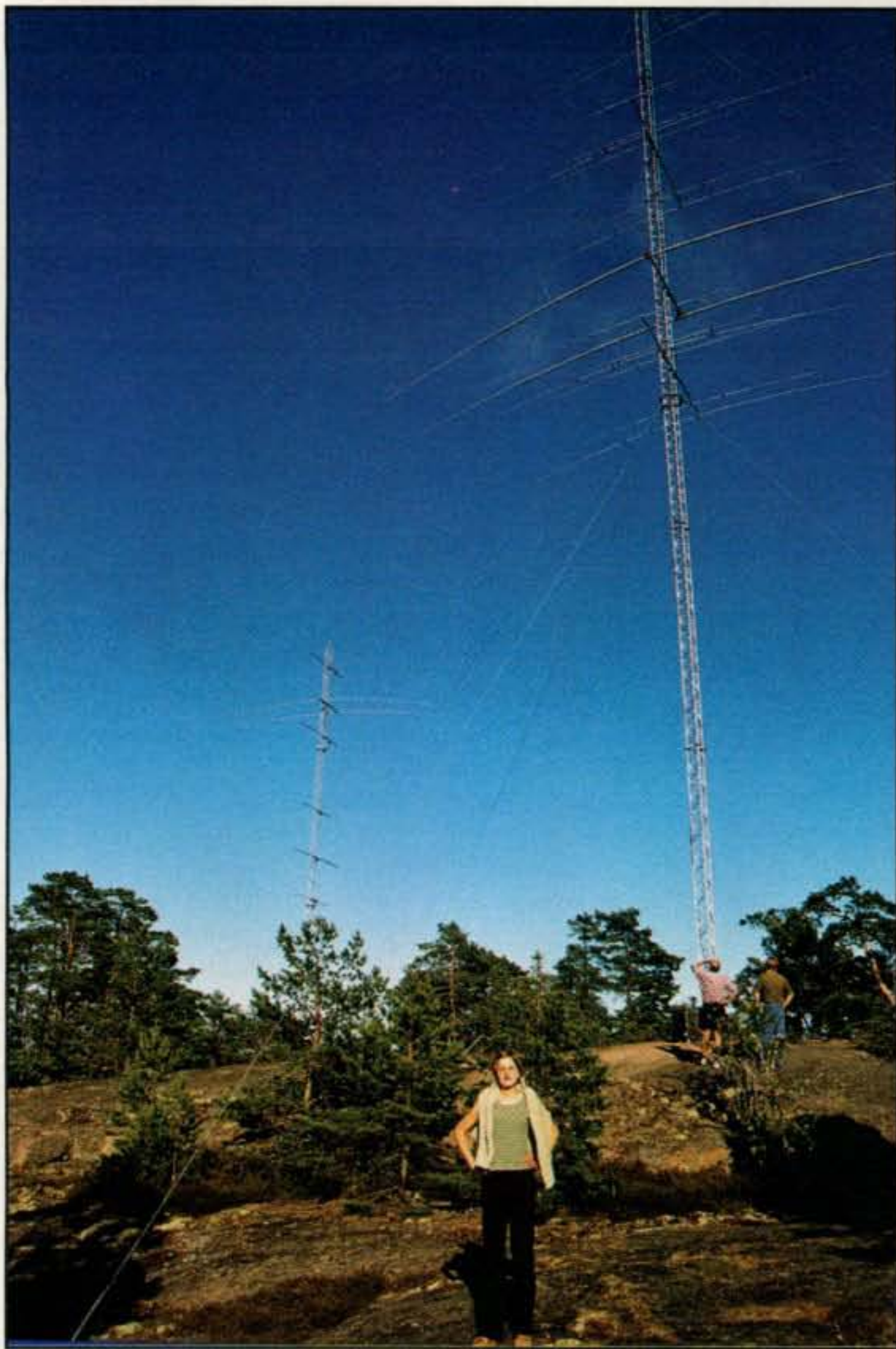


Photo H— The two rotary towers with stacked Yagi antennas of the OHØZ contest site in the northern part of the main island of the Åland archipelago. The station is owned by a few Helsinki hams. A YL (young lady) from Poland, Donata, SP5HNK, is in the picture, one of the many summer visitors to the islands.

hams, is hosted by Peter, OHØJFB. Peter is one of the youngest native OHØ hams and is usually active on VHF from his club station, OHØAZ, which is actually next to the OHØZ contest shack.

Every summer there are at least several visitors who get on the air from Åland (photo I). Some of them go to the very small reef called Märket, which enjoys a separate DXCC entity status. The rock is divided by the Swedish-Finnish borderline, but it is only the Finnish part with assigned prefix OJØ that counts as a country/multiplier. The lighthouse is not manned anymore, but there is still a power generator that can be used by visitors upon arrangement with Lars, OHØRJ, who lives in Mariehamn, the main town of the archipelago.

It is very easy to get to the Åland Islands from my home in Stockholm, Sweden, and I have been there many times. During every visit I try to help the local amateur radio community in some way. I think that radio, and amateur radio in particular, is better respected and more valued by people living on islands because of their natural remoteness, in spite of modern technology. Think about it next time you go to some island, for holidays, or for radio, or both. ■



Photo I— A visitor from far away—Oliver, W6NV, from northern California—dropped in to visit Sture, OHØJFP's contest shack after participating in a major contest from Märket Reef OJØ last summer.

A Closer Look At The Åland Islands

The area is formally part of Finland but has a high degree of autonomy and more of a historical connection to Sweden than to Finland. The official language of the Ålands, guaranteed by law, is Swedish. The hams of Åland who belong to the Finnish radio society, SRAL, may receive the monthly QTC magazine from Sweden instead of the regular Finnish language magazine, *Radioamatööri*, from Helsinki. The local currency is the Euro, as in the rest of Finland, but Swedish money is also accepted virtually everywhere on the Ålands.

The autonomy of Åland was a compromise reached in 1921 in Geneva, Switzerland, by the League of Nations. There is a local government and a parliament called The Åland Lagting, and the post office issues its own stamps. The importance of the region's autonomy has been diminished somewhat by its membership in the European Union (since 1995), but many original issues and restrictions are retained. For example, it is almost impossible to settle down here and become a *real* OHØ, but buying a callsign from the Finnish Communications Regulatory Authority has been easy since 1997.

In the summer thousands of Swedish tourists and other visitors invade these sunny islands, and there is always a good variety of OHØ/ transmissions on all bands in accordance with the CEPT reciprocal operating agreement. I have caught a few foreign visitors in action there (see photos H and I).

If You Visit...

If you're considering a trip to Åland, getting in touch with local hams beforehand is highly recommended. The OHØAA club holds its meetings on Monday nights in its office in Mariehamn. The club's contest station, OHØA, is some five miles north of town in a place called Dalkarby. The most impressive antenna farm on Åland—which consists of some eight towers with HF, VHF, and UHF antennas—is owned and was built in a couple of years by Sture, OHØFJP (photo F) and is some five miles south of Mariehamn, adjacent to the wind power generators on the hill in Lemböte.

The OHØAZ club is located in the northern part of the main island, next to the site of HF contest station OHØZ (photos H and cover). The OHØB contest site (photo E) is on the island of Brandö, in the eastern part of the archipelago, close to the Finnish mainland. It is possible to make arrangements with local individuals or clubs to use their antennas or equipment.

My favorite time to visit Åland is in September, when there are fewer tourists, the trees are rich with color, the sea is lukewarm, and it can still be sunny. Plus, since it is "off season," everything is less expensive.—SMØJHF

Results of the 2004 CQ WW DX SSB Contest

BY BOB COX,* K3EST

Expanded CQ WW Contest Results on the Web

We've moved a few elements of our contest reporting onto the CQ website again this year, including **Station Operators** of Multi-Op stations, **Team Contesting**, and **Zone Leaders/Single Op**. In addition, we have expanded **QRM** on the web.

To view these additional and expanded elements of the 2004 CQ WW SSB results, go to <http://www.cq-amateur-radio.com/cqwwhome.html>, then click on "Expanded Results, 2004 CQ WW SSB" and select the category you want to see. You may also get there by going to our home page at <http://www.cq-amateur-radio.com>, clicking on "Contest Rules & Info," then clicking on "CQ World Wide DX Contest" and selecting "Expanded Results, 2004 CQ WW SSB."

The 2004 CQ WW DX SSB test was a real surprise. The sunspots were really going down and depressed conditions were expected. What happened gives truth to the saying "The CQ WW makes its own propagation." Ten meters being open worldwide was a gift from the sun. The 2004 contest marks the highest number of submitted logs in radio history. Over 4300 SSB logs in the world's largest international radio event had been received when everything was tabulated.

Let the entrants' own words describe the weekend: "As usual 10m opened to make it a great contest." . . . 9H1DE. "Good contest, very nice conditions on all bands especially on 20 meters all the night in both days." . . . CE4PBB. "Big fun because of big activity all

over world!" . . . DL2RZG. "Once again, another glorious weekend." . . . EA3ALV. "Good condx meant fun with only 100W and a short bit of wire." . . . EI2JC. "A fantastic adventure!" . . . FP/VE7SV. "Wow! Totally unexpected 10/15m condx." . . . GW3JXN. "Amazing. Many new countries." . . . HK3JFF. "Wow, what a funny contest! Great conditions on 10m, way beyond expectations, led us to our best ever score." . . . J49Z. "Super conditions for this time in the cycle." . . . VE6FI. "Who ever expected 10m to be as hot as it was?" (VK4CZ). "Great contest. We turn ourselves into zombies. We end up with a hoarse voice. We deny ourselves sleep. We are hungry. We are thirsty. It still remains a great contest." . . . VK7VH. "The 10 meter god smiled upon us." . . . ZK1AQT.

Sure the CQ WW is a fantastic competition, but it is much more than that. It is a cel-

ebration of ham radio skills and effort. As VP2E aptly said, "We contest for the fun of it. It is certainly nice to win, but it's great to operate, win or lose. If you operate, you can't lose. You only lose when you don't. It's a worldwide party . . . and you are definitely invited!"

All Band, High Power

After operating from locations all over the world, Jim, W7EJ, seems to have found a winning location at CN2R. Located near Casablanca, CN2R took the number one position in the hotly contested Single Op All Band category (<http://radioamateurs.he-arc.ch/cn2dx/articles/contest/>). This is the first time two SO stations broke the 20-million point barrier. Second place went to Al, 4L5A, operating D4B from his hilltop location in the Cape Verde Islands (<http://www.qsl.net/d44tt/>). Both stations pounded through on all bands. Third place went to Tom, W2SC, who again put 8P1A near the top. A special mention goes to Robert, S53R, operating A61AJ, the number one score in Asia. He set a new all-time Asia record! The second place Asia score was submitted by Andy, UA3DPX, at EX9A.

The number one score in Europe and number six world was Robert, G1ØKOW, using the call G11W. Robert averaged 132+ Q's per hour over the 48 hours! It was during the contest that the UK received 40-meter privileges above 7100 kHz. Robert and others took full advantage of running simplex. To find second place just QSY slightly east to Steve, GW4BLE's QTH. Once again Steve did an outstanding job. Third place went to Tine, S50A, located just outside Ljubjana, Slovenia.

For a U.S. station, making the top ten in the U.S. is hard enough, but making the world top ten is a real accomplishment. The number one scorer in the U.S. was Ken, K4ZW. As you may have noticed, he has been working his way up in the standings. Now he stands as having the best U.S. score, and he is *not* from New England, which makes his score even more remarkable. Perennial top ten finisher, Bob, KQ2M/1, finished second. Third place was taken by Gator, N5RZ, operating at K5ZD/1. Farther west Mike, W9RE, put the Midwest in the box, while Steve, N2IC/5, operating from New Mexico and Mitch, K7RL, from Washington represented the U.S. far west. It's not an easy task to make the top ten from Zone 3.

The continental winners were: North America 8P1A (W2SC), Africa CN2R



The shack of K3LR, new U.S. record holder, Multi-Op, Two-Transmitters.



Chris, KA1LMR, number two U.S. QRP.

(W7EJ), Asia A61AJ (S53R), Japan JS3CTQ, Europe G11W (G10KOW), Oceania, VK9XD (VK2CZ), South America P49Y (AE6Y).

All Band, Low Power

The category that has the greatest number of participants by far is Low Power. To win this category is not easy. Reprising his win from last year was Thomas, SU9NC. Nothing makes testers happier than coming across a double multiplier. SU9NC was able to supply that 5601 times! Second place went to European traveler Danny, T93M, who visited Bonaire to activate PJ4J (<http://www.t93m.com/>). Mike, K9NW, went to FG to take third place, not an easy job from a two-point area.

The number one 100 watts or less entrant in Europe was CT7B operated by Jose, CT1CJJ. The number two scorer in Europe and on the Iberian peninsula was Manuel, EA7RM. Third place went to LY9A operated by LY3BA, Gediminas. Here in the USA, Ed, N1UR, was the clear winner in the barefoot category. Taking second was Ann, WA1S (<http://home.tiac.net/~wa1s/>), who is always near or at the top. Third place went to the West Virginia QTH of Jeff, N8II.

The continental winners were: North America FG/K9NW, Africa SU9NC, Asia YI9OM, Japan JS1OYN, Europe CT7B (CT1CJJ), Oceania T30T (K7ZZ), South America PJ4J (T93M).

QRP

If you want to practice your contesting skills, the QRP category is the way to do it. Finding new stations and knowing when to call a station or to give up and move on is what QRP is all about. It is surprising what you can work with 5 watts. If you want to improve your contesting skills, the QRP category could be the refresher course you need.

Again in 2004 the top three scores came from different continents. The world number one QRP signal was put out by John, KK9A, operating at P40A. John has been very active from Aruba for several years. Following in second place was Gerard, F5BEG, who has been a high-place finisher in QRP many times. Third place in the world and number one in the U.S. was Tom, N4KG, operating from Alabama. In Europe first place went to

Remi, LY2MW, operating LY4XX (<http://www.qsl.net/ly2mw/>). Second place went to Juergen, DF1DX (<http://www.df1dx.de/>). Third place in Europe went to Bengt, SM5CCT, operating club station SK3W (<http://sk3w.shacknet.nu/gallery/>). Chris, KA1LMR, finished number two in the U. S. (<http://hometown.aol.com/ka1lrmrusa/myhomepage.html>), while John, KO1H, was third. Finishing just outside the top ten box were JR4DAH and UA9SG.

The continental winners were: North America N4KG, Africa EA8TX, Asia JR4DAH, Japan JR4DAH, Europe F5BEG, Oceania YB2OK, South America P40A(KK9A).

Assisted

When a single op receives QSO/multiplier spotting assistance from a source in any form, that operator is in the Assisted category. There are lots of reasons to try this category. You have to make the best use of spots without it affecting your QSO total. It's not easy to do.

The 2004 world top score came from John, W2GD, operating from P40W. John has been putting P4 on the map for many years. Everyone appreciates his dedication to contesting. A hard-fought battle ensued for second place, which was taken by Hrane, YT1AD, operating 3V8BB. He was followed by Laurent, F5MUX, at FM5BH (<http://www.fm5bh.com/>). In the USA first place went to Rick, K3OO. Ray, W2RE, took second place (<http://www.hamsonline.net/w2re>). Charles, K3WW, took third (<http://www.users.fast.net/~k3ww/>). In Europe the number one score was submitted by Andre, F6GYT, at TM7F. Farther east in second place was Rolandas, LY2FY, at LY4A (<http://ly4a.kli.lt>). Braving the northern lights was Ari, OH5DX, at OH0Z, who took third (<http://www.qsl.net/oh0z/>).

The continental winners were: North America FM5BH, Africa 3V8BB, Asia RG9A (UA9AM), Japan JE1OHL, Europe TM7F (F6GYT), Oceania AH6RF, South America P40W (W2GD).

Multi-Single

Each year testers band together and travel to compete in a multi category, of which Multi-Single is the most popular. A real battle occurred in the Multi-Single category in the 2004 contest. Three FB stations with top operators went head to head. The international team from Pantelleria Island, IH9P, took the top position (<http://www.ih9p.com>). Another African team located in the Madeira Islands, CQ9K, took second place (<http://www.madeirateam.com>). Not far behind was FY5KE, who took world third place (<http://www.fy5ke.org/>).

MS in Europe was a real fight. The top four teams from central Europe were separated by less than 560K. After it was finished, OM8A took top honors (<http://www.qsl.net/om8a/>). Second place went to OE2S (<http://www.qsl.net/oe2s/>). Another Slovakian team, OM7M, took third (<http://www.qsl.net/om7m>).



Pedro, HK1XX, number two in the world, Single Op, 14 MHz.

No less of a battle took place in the U.S. KT1V edged out K1KI (http://www.yccc.org/Articles/K1KI_Profile.html) for the top slot. Third place went to K1IR (<http://www.designet.com/k1ir>).

The continental winners were: North America VY2ZM, Africa IH9P, Asia 5B/AJ2O, Japan JA7YAA, Europe OM8A, Oceania AH2R, South America FY7KE.

Multi-Two

The M2 category continues to grow in popularity. You have to have a good plan and good operators if you want to try for the top spot. You cannot do better than to set a new world record the first time you enter a new category, and VP2E did it in the 2004 contest. These operators didn't just break the old record, they really raised the bar. Look at the score and you will be amazed. VP2E made a score in the range usually reserved for Multi-Multi stations—40M points. The team did it from a two-point area! The Caribbean Contesting Consortium, PJ2T, always a force to watch out for, took second place (<http://www.pj2t.org>) and CT9L took third. Not far from Bologna, IR4X (ne IQ4A) entered the M2 group and took top European honors (<http://www.ari-bo.it/iq4a.htm>). Second place went to 9A7A (<http://www.qsl.net/9a7a>) and third to UU7J (<http://www.uu7j.com>).

In the USA, new ground was being broken in western PA. The team at K3LR huddled together before the contest and decided to try for something completely different: M2: A good decision. K3LR set a new USA M2 record. Their score was just below the USA MM's! What a job (<http://www.k3lr.com>). On the other side of PA, Sig's team, N3RS took second place (<http://www.n3rs.com/main.html>) while Paul's team, K4JA in northeastern VA took 3rd. A special mention must be made of the fine effort of NK7U to finish USA high west of zone 5. The continental winners were: North America VP2E, Africa CT9L, Asia RT9W, Japan JA1KQX, Europe IR4X, Oceania VK4CZ, South America PJ2T.

Multi-Multi

Take a lot of work, a lot of planning, and people coming from all corners of the world and

you have a multi-multi team. In 2004 the number one scoring team was assembled at the QTH of Manu, EA8ZS. Taking full advantage of their proximity to Europe, EA8ZS scored over 44M points (<http://www.qsl.net/ct1boh/ea8zs.htm>). Second place went to perennial top finisher HC8L from the Galapagos. Moving to northeast North America, VE7SV and crew had a fantastic time putting FP/VE7SV in lots of logs for third-place world (http://www.bcdxc.org/st_pierre_miquelon.htm).

Taking the top spot in Europe was 9A1A. Operating from a mountaintop QTH, 9A1A always had a good signal. Second-place Europe went to the club with quads—DF0HQ (<http://www.df0hq.de>). DF0CG, a well-known German club station, took the third-place position. In the U.S., W3LPL located in central Maryland was the high scorer (<http://homepage.mac.com/rucker/PhotoAlbum46.html>), just edging out KC1XX. Operating from just inside the aurora zone, KC1XX's super station took second place (<http://www.kc1xx.com>) while K9NS (<http://www.k9ns.com>) took third.

The continental winners were: North America FP/VE7SV, Africa EA8ZS, Asia UP5G, Japan JA3YBK, Europe 9A1A, Oceania KH7X, South America HC8L.

Team Contesting

What do five contesters from anywhere in the world have in common? Besides the fun of contesting, they can form a team. Make a team, register your team before the contest, and you are all set to enter the Team Contesting category. A teams' members can be all over the world. This year's SSB winner was a repeat from last year—Contest Club Finland's Team Sauna. The sauna really heated up! They led the pack of 18 entries.

1. Contest Club Finland Team Sauna (15,906,643 pts.): OH0Z (OH5DX), OH2RA, OH6NIO, OH8NC, ES5TV.

2. Florida Contest Group On The Move (12,062,347 pts.): PJ4J (T93M), OM6NM, KG4WW (KX4WW), VP5DX (NU4Y), N8PR/4.

3. Worldwide Young Contesters Champs (9,458,023 pts.): K3OO, G0MTN, 9A7P.

4. VK Contest Club Australis (5,688,634 pts.): VK9XD (VK2CZ), VK7GN, VK4UC, VK3TZ, VK4TI.

5. VK Contest Club Koalas (3,781,079 pts.): VK6DXI, 9M2/G4ZFE, VK6LW, VK4DX.

6. Florida Contest Group Part-Timers (3,359,656 pts.): AA4RX, N4EK, K4JAF, NA4CW, WC4E.

7. Florida Contest Group (3,204,994 pts.): K1UM/4, W4ARM, N4WW.

8. Worldwide Young Contesters Part Time Job (3,178,054 pts.): OZ1AA, 9A1P, 4L6AM.

9. Florida Contest Group Feeder Bands (3,142,266 pts.): K4XS, K4VUD, N4BP.

10. Florida Contest Group With New Antennas (2,205,095 pts.): WX4G, KK4TA, K4RFK, KB4ET.

11. Contest Club Finland Team Finlandia (2,006,118 pts.): OH4A (OH6XX), SM0W (SM0WKA), ZA/OH2PM, ZA/OH2BH.

12. Contest Club Finland Sibelius playing



Thomas, YC3BDJ, number 6 world, Single Op, Low Power, 21 MHz.



The QTH of Philippe, LX7I (LX2AJ), number two world, 3.7 MHz.

15 meters (1,761,987 pts.): OH0V (OH6LI), OH2BH (OH1WZ).

13. Florida Contest Group Generating Heat (1,359,706 pts.): K4PV, N4GI, W7QF, WB2QLP/4.

14. Worldwide Young Contesters Hell Riders (895,169 pts.): DM2SR, ON7BS, DJ7EC, M3PHP, LZ1ABC.

15. Contest Club Finland Team Terva (445,115 pt.): OH1BOI, OH2LU, OH6XX (OH6GLE).

16. Aztecas New Kids (304,557 pts.): XE1NK, 4A1UN (XE1UN).

17. VK Contest Club Cockatoos (274,860 pts.): VK3DBQ, VK4AN, VK3YB.

18. Contest Club Finland Team Sisu (210,348 pts.): OH4RH, OH4MFA.

Records

On the CQWW.com web page are the all-time records for each continent and country. Setting a new record is difficult and challenging. Take a look at your country's records and choose a record you can try to beat. Congratulations to the following stations which set new world and continental records.

World: L1.8, YM0T (TA2RC); Q7, KP4KE; Q1.8, LY5A (LY2PAJ); A14, 4L6AM; A3.7 YU7AV; M2 VP2E.

Africa: 14m D44TD (IV3TAN); QA, EA8TX; A14, EA8BVX; A21 EA8ANE.

Asia: A, A61AJ (S53R); L1.8, YM0T (TA2RC); A14, 4L6AM; M2, RT9W.

Europe: 3.7, SP3GEM; Q21, YT7TY; Q7, S53D (S59DR); Q1.8, LY5A (LY2PAJ); A21,

9A5Y (9A3LG); A14, DL2ARD; A3.7, YU7AV; M2, IR4X.

Japan: A14, JA1YPA (JH1FDP).

USA: L21, N2BA; L7, K3BU/2; L3.7, N4IJ; M2, K3LR.

North America: A, 8P1A (W2SC), LA, FG/K9NW; Q7, KP4KE; Q1.8, VE3MGY; M2, VP2E.

Oceania: L21, YC3BDJ; A28, AH6RF; A21, ZL2DX; A14, ZL4PW.

South America: LA, PJ4J (T93M); L14, P43E; A7, ZW5B (PY5KD); A3.7, PY2WC.

Special Mention

The CQ WW sure brings out the desire to travel in many hams. Thanks to the many DXpeditions and the efforts of hundreds of contesters who made the contest experience more interesting for all of us. Here are some calls you probably worked: V29NR, C6AUR, 8P1A, FG/K9NW, H6C, V44/KC2FVN, NC2N/V44, V49A, FS/AH8DX, PJ7/K3TC, VQ5C, VP5DX, VP5KE, D44B, D44TD, EA9/OL8R, C56ACA, 3B8MM, CN2R, V55V, 9L1ADA, ST2T, 9J2KC, YA7X, 5B/KI0BP, YI9MD, YI9GT, EX9A, BN0F, EY8/F5NHJ, A61AJ, UK/JI2MED, 3W3A, OH0V, OH0R, ZA/OH2BH, ZA/OH2PM, EA6/LY1DF, YM0T, J43J, EI2VNO, ER0ND, ER0FEL, CT/DL5IC, 9M8YY, 9M6US, V6A, KH6/W0CN, YB0A-JR, PA0CYW/DU2, T30T, VK9XD, P49Y, ZV1R, PJ4J, 9Y4NZ, P40A, TE1W, TI5X, TI5/W8QZA, V44/EW1AR, TI5N, TI1W, TI5A, W1AJT/VE3, FM5BH, 5H3HK, 3V8BB, OH0Z, P40W, C6DX, C6AVV, VP9/W4OV, J75J, VP5X, IH9P, CQ9K, C91Z, 6W1RY, 5B/AJ2O, A52CDX, 4U1ITU, OH0I, J49Z, SY9Y, AH2R, FY5KE, 9Y4ZC, VP2E, TI8M, WP2Z, CT9L, CU2Z, PJ2T, V26B, V47KP, FP/VE7SV, VP5T, EA8ZS, XX9C, MD4K, HB0/HB9AON, IS0/I10A, HC8L, SU9NC.

One fun aspect of the contest is the competition that takes place within a country or locally. Two friends or more go at it to see who will come out on top. By looking carefully at the results you can see many such competitions.

Comments

To anyone who tunes the bands during the CQWW it is very clear that the radio spectrum is being fully used. Use of the bands is good. With the increasing cross-continental simplex QSOs on 40 meters, even more of the spectrum will be put to use. Forty phone has always been a communications problem, whether you are in Region 1, 2, or 3. You either have too little space or must fight the broadcast carriers to make crossband QSOs.

In 2004 the percentage of electronically received logs rose to 95%! The CQWW Contest Committee wants to thank all the entrants who took the time to submit their log via the CQWW robot. Your effort to submit an electronic log allows for a fairer adjudi-

(Continued on page 99)

10 Bands -- 1 MFJ Antenna!

Full size performance . . . No ground or radials

Operate 10 bands: 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 Meters with one antenna
Separate full size radiators . . . End loading . . . Elevated top feed . . . Low Radiation Angle . . . Very wide bandwidth . . . Highest performance no ground vertical ever . . .

Operate 10 bands -- 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 Meters with this MFJ-1798 vertical antenna and get full size performance with no ground or radials!

Full size performance gives high efficiency for more power radiated. Results? Stronger signals and more Q-5 QSOs.

Full size performance also gives you exceptionally wide bandwidths so you can use more of your hard earned frequencies.

Full size performance is achieved using separate full size radiators for 2-20 Meters and highly efficient end loading for 30, 40, 75/80 Meters.

Get very low radiation angle for exciting DX, automatic bandswitching, omni-directional coverage, low SWR. Handles 1500 Watts PEP SSB.

MFJ's unique *Elevated Top Feed™* elevates the feedpoint all the way to the top of the antenna. It puts the maximum radiation point high up in the clear where it does the most good -- your signal gets out even if you're ground mounted.

It's easy to tune because adjusting one band has minimum effect on the resonant frequencies of other bands.

Self-supporting and just 20 feet tall, the MFJ-1798 mounts easily from ground level to tower top -- small lots, backyards, apartments, condos, roofs, tower mounts.

Separate Full Size Radiators

Separate full size quarter wave radiators are used on 20, 17, 15, 12, 10 and 2 Meters. On 6 Meters, the 17 Meter radiator becomes a 3/4 wave radiator.

The active radiator works as a stub to decouple everything

MFJ's Super High-Q Loop™ Antennas



MFJ-1786
\$379⁹⁵
MFJ's tiny 36 inch diameter loop antenna lets you operate 10 through 30 MHz continuously -- including the WARC bands!

Ideal for limited space -- apartments, small lots, motor

homes, attics, or mobile homes. Enjoy both DX and local contacts mounted vertically.

Get both low angle radiation for excellent DX and high angle radiation for local, close-in contacts. Handles 150 watts.

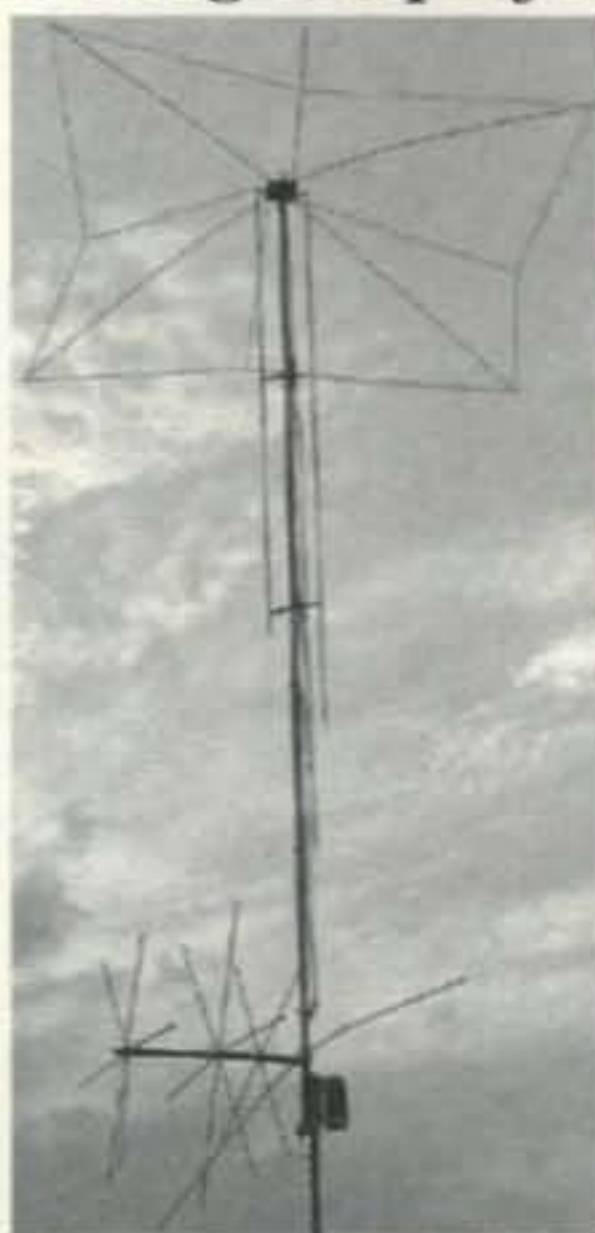
Super easy-to-use! Only MFJ's super remote control has *Auto Band Selection™*. It auto-tunes to desired band, then beeps to let you know. No control cable is needed.

Fast/slow tune buttons and built-in two range Cross-Needle SWR/Wattmeter lets you quickly tune to your exact frequency.

All welded construction, no mechanical joints, welded butterfly capacitor with no rotating contacts, large 1.050 inch diameter round radiator -- not a lossy thin flat-strip -- gives you highest possible efficiency.

Each plate in MFJ's tuning capacitor is welded for low loss and polished to prevent high voltage arcing, welded to the radiator, has nylon bearing, anti-backlash mechanism, limit switches, continuous no-step DC motor -- gives smooth precision tuning.

Heavy duty thick ABS plastic housing



MFJ-1798

\$289⁹⁵
Ship Code F

beyond it. In phase antenna current flows in all parallel radiators.

This forms a very large equivalent radiator and gives you incredible bandwidths.

Radiator stubs provide automatic bandswitching -- absolutely no loss due to loading coils or traps.

End Loading

On 30, 40, 75/80 Meters, end loading -- the most efficient form of loading -- gives you highly efficient performance, excellent bandwidth, low angle radiation and automatic bandswitching.

MFJ's unique *Frequency Adaptive L-Network™* provides automatic impedance matching for lowest SWR on these low bands.

Tuning to your favorite part of these bands is simple and is done at the bottom of the antenna.

No Ground or Radials Needed

You don't need a ground or radials because an effective counterpoise that's 12 feet across gives you excellent ground isolation.

You can mount it from ground level to roof top and get awesome performance.

No Feedline Radiation to Waste Power

The feedline is decoupled and isolated from the antenna with MFJ's exclusive *AirCore™* high power current balun. It's wound with *Teflon®* coax and can't saturate, no matter how high your power.

Built to Last

Incredibly strong solid fiberglass rod and large diameter 6061 T-6 aircraft strength aluminum tubing is in the main structure.

Efficient high-Q coils are wound on tough low loss fiberglass forms using highly weather resistant *Teflon®* covered wire.

MFJ halfwave vertical

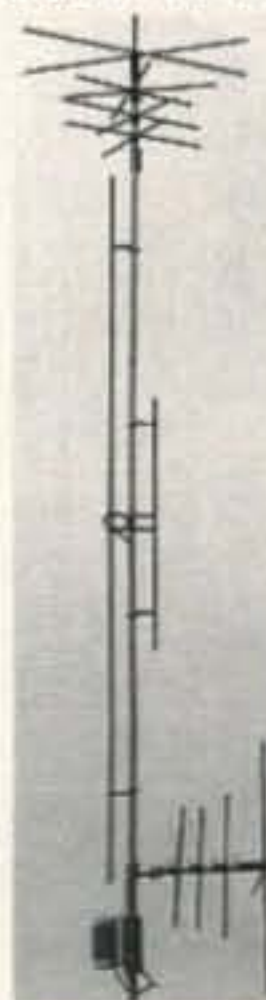
6 bands: 40, 20, 15, 10, 6, 2 Meters . . . No radials or ground needed

Only 12 feet high and has a tiny 24 inch footprint! Mount anywhere -- ground level to tower top -- apartments, small lots, trailers. Perfect for vacations, field day, DXpedition, camping.

Efficient end-loading, no lossy traps. Entire length is always radiating. Full size halfwave on 2/6 Meters. High power air-wound choke balun eliminates feedline radiation. Adjusting 1 band has minimum effect on others.

MFJ-1792, \$169.95. Full size 1/4 wave radiator for 40 Meters. 33 feet, handles 1500 Watts PEP. Requires guying and radials.

MFJ-1793, \$189.95. Like MFJ-1792 but has full size 20 Meter 1/4 wave also.



MFJ-1621 \$89⁹⁵

MFJ-1621 lets you operate in most any electrically free area -- apartment, campsite, hotel, the beach, etc.

DXCC, WAZ, WAC, WAS have been won with MFJ-1621! Work 40, 30, 20, 17, 15, 12 and 10 Meters with a telescopic whip that extends to 54 inches. Mounted on a sturdy 6x3x6 inch cabinet. Built-in antenna tuner, field strength meter, and 50 feet of RG-58 coax cable. Handles 200 Watts.

MFJ's G5RV Antenna



MFJ-1778

Covers all bands, 160-10 Meters with antenna tuner. 102 feet long, shorter than 80 Meter dipole. Use as inverted vee or sloper to be more compact. Use on 160 Meters as Marconi with tuner and ground. Handles full legal limit power. Add coax feedline and some rope or other nonconductor and you're on the air!

Free MFJ Catalog

and Nearest Dealer . . . 800-647-1800

<http://www.mfjenterprises.com>

1 Year No Matter What™ warranty 30 day money back guarantee (less s/h) on orders from MFJ

MFJ ENTERPRISES, INC.
 Box 494, Miss. State, MS 39762
 (662) 323-5869; 8-4:30 CST, Mon.-Fri.
 FAX: (662) 323-6551; Add s/h
 Tech Help: (662) 323-0549

Prices and specifications subject to change. (c) 2000 MFJ Enterprises, Inc.

MFJ . . . the world leader in ham radio accessories!

If you couldn't make it to this year's Dayton Hamvention®, WA5KUB made it possible to "virtually" attend the show by way of his HelmetCam and the internet.

The Hamfest Helmet Cam

BY JOHN WOOD,* WV5J

"Share the fun; come to our hamfest!" That has been the typical call from hamfest committees over the years. However, there are always many hams and non-hams who for understandable reasons find it impossible to attend no matter how much they would like to do so. This year's 54th Dayton Hamvention® was a prime example.

Now with the help of Memphis amateur Tom Medlin, WA5KUB, those hamfest enthusiasts who are fulfilling military service in far-off lands, have other overriding obligations, live too far away, or are physically unable to enjoy a hamfest firsthand have a new way to take part in the event.

Over the last few years Medlin has been breaking ground by developing a method of transmitting video from hamfests and ham conventions over the internet on his website, <www.tmedlin.com>. In previous years, he used a small web camera and a laptop computer, along with a wireless internet service, to send video from his flea market spaces at the Dayton Hamvention® and from the Memphis hamfest, which is called Dixiefest.

Last year a few web users, hams and non-hams, were able to follow Medlin and his traveling companions as they drove from Memphis to Dayton to attend the popular event. Others were able to tap into the show Medlin originated from his flea-market space at Hamvention®, but Medlin realized there was a problem. The limited bandwidth available through his wireless service only allowed a handful of people to watch at any one time. In preparation for the 2005 Hamvention® Medlin engineered a slightly different system for transmitting his Hamvention® video to the world via the internet.

"This year we went all out and designed a system that could handle the viewers," Medlin said. "We took the same bandwidth we had before and instead of sending that out, we sent it to a video server I set up in Memphis and connected that to the internet via a dedicated full T1 (1.53 Mbits)."

Instead of the seven or eight viewers he had last year, Medlin said he about 100 viewers connected to his video signal at the same time. "I didn't hear a complaint from anyone about not being able to watch the video," Medlin said.

Memphis-to-Dayton Road Show

Also for 2005, Medlin did not just provide video from the Hamvention® flea market. Via the web, he transmitted video of his entire trip from Memphis to Dayton on the Wednesday prior to the Hamvention® and on the way home on Sunday. Also, instead of web viewers being able to communicate with



Tom Medlin, WA5KUB, introduced the Helmet Web Cam at the 2005 Dayton Hamvention® so his many web viewers could join him in touring the flea market and indoor exhibits. (Photos by the author)

Medlin's bunch via e-mail as in previous years, Medlin set up an interactive chatroom in conjunction with the video web page for realtime keyboard exchanges with local and international viewers.

"We were able to telecast 400 miles of the 500-mile trip," Medlin said. "It was fun chatting with people as they watched us drive. Viewers said they were seeing good detail. Several people who lived in Cincinnati told us they lived 'on the next exit.' To tell us that, they had to know right where we were."

*1870 Alder Branch Lane, Germantown, TN 38139
e-mail: <wv5j@netscape.net>



WA5KUB shows off his Helmet Web Cam for the media in a brief exchange of digital images with a photographer from the Dayton Daily News.

The internet road show continued even when driving was interrupted by mealtimes and nature calls. Medlin simply would attach the web cam to a helmet and wear it into the restaurant (We hope it stayed at the table when he went to "take care of business" —ed). During the Hamvention® the Helmet Web Cam allowed Medlin to take his internet audience inside the Hara Arena to view the wares of the various indoor exhibitors.

Looking at all the Goodies

"We walked around the flea market and people could clearly see all the items that were for sale, but we kept getting requests from people to go inside," Medlin said. "I finally wore the Helmet Cam inside and let them see what that part of Hamvention looked like."

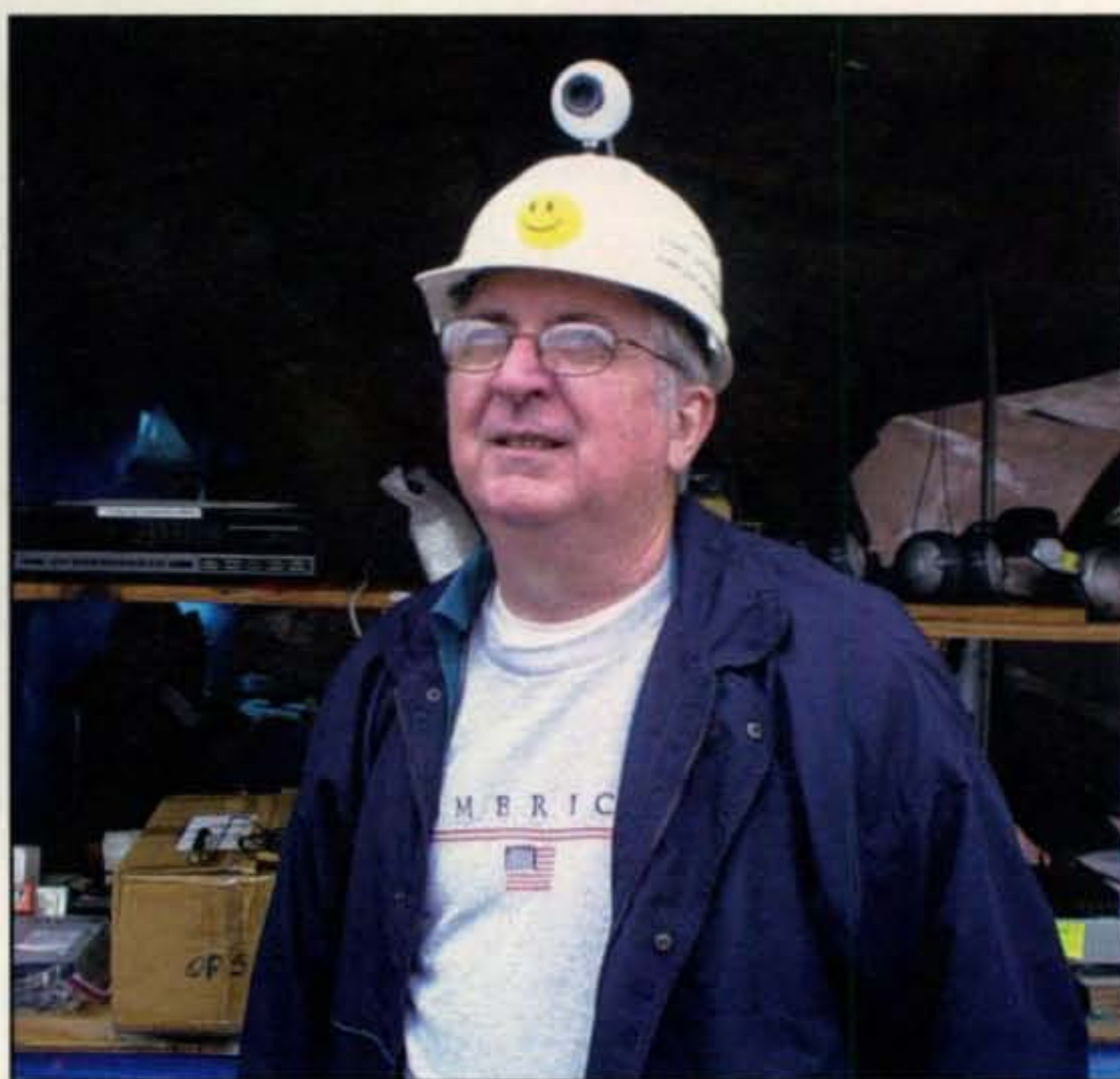
Medlin's indoor tour included visits to the Kenwood and ICOM booths. He also pointed the camera at notables such as Gordon West, WB6NOA, and a collection of young beauties wearing pink bathrobes and house shoes. The young ladies were models hired by ICOM to promote its presence at Hamvention® and the announcement of a new amateur radio product.

"My son, Chris, KB5UMS, rounded up the ICOM girls from inside and brought them all out to the flea-market space to put them all on internet video," Medlin said. "While there, they chatted with a lot of the viewers watching our webcast around the world."

Viewers Around the World

For his efforts, Medlin received hundreds of e-mails from people from various countries (Australia, India, England, Germany, the Netherlands) thanking him for making it possible for them to be a part of the Hamvention® even though they didn't have the time or the funds to make the trip in a more conventional manner. Many of the e-mails, especially those from hams, mentioned that while they were unable to attend this year, they had been to the Hamvention® in the past and because of Medlin's video they were looking forward to attending in person next year.

By the numbers, Medlin's server statistics showed he had more than 250,000 hits during this year's event and approx-



Combining his two hobbies of amateur radio and computers, Medlin came up with his Helmet Web Cam as a better way of sharing his trip to the Dayton Hamvention® with thousands of web viewers, including servicemen and women and the disabled, who had no other way to participate in the annual event.

imately 29,000 distinct viewers. His website was linked to qrz.com and hamvention.org.

Medlin also captured the attention of the Dayton media, including local TV Channel 7 and a photographer from the Dayton Daily News. Photos of Medlin wearing the Helmet Cam were published in the local newspaper the second day of the Hamvention®, and they drew a large number of Dayton area viewers to Medlin's website. The media attention prompted an e-mail for Medlin from a construction company wanting to use similar video technology in its daily operations.

So if you'd really rather be in Dayton next year, but reality gets in the way, you might be able to get in a vicarious visit via Tom Medlin's website. ■



All in range of the Helmet Web Cam were invited to smile for the camera that WA5KUB used to telecast his trip to the 2005 Dayton Hamvention® over the World Wide Web.

Some three dozen new items debuted at this year's Dayton Hamvention®, along with five manufacturers new to the ham radio market. Here's our annual tour of "Hot Stuff at Hamvention."

Dayton 2005

Year of the (Built-In) Computer

BY RICH MOSESON,* W2VU

It always seems that a survey of new products introduced at the Dayton Hamvention® turns up signs of coming trends in amateur radio equipment. Last year, it was the return of "big radios." This year, it seems, the trend is toward even greater integration of computers and automation into our radio gear, best illustrated by a new rig from a new company in the ham market, the Sienna transceiver kit (yes, kit) from the DZ Company (photo A). This 100-watt HF transceiver—due to be available this fall—includes a built-in personal computer running Windows XP® along with a built-in web server for remote control via the internet! Along with developing a transceiver with built-in computer and web connectivity, DZ founders Brian Wood, WØDZ, and Rob Strieby, WØHDD, are trying to replicate the detailed step-by-step instruction manuals that used to come with Heathkits, even down to the yellow covers (photo B)!

Hamation, another new name in the field, is offering the serious single-op two-radio (SO2R) contester a suite of station-control equipment built around a portable computer that runs on 12 volts DC! The Shack-LAN system (photos C and D) consists of the PC-600 computer plus several other components, including a choice of two different radio interface/antenna selectors, two different antenna switches, band-pass filters, and a set of relay drivers to interface existing equipment with the overall system. Everything is built in rack-mount cases and is interconnected via a standard Ethernet local area network (LAN). Configuration software

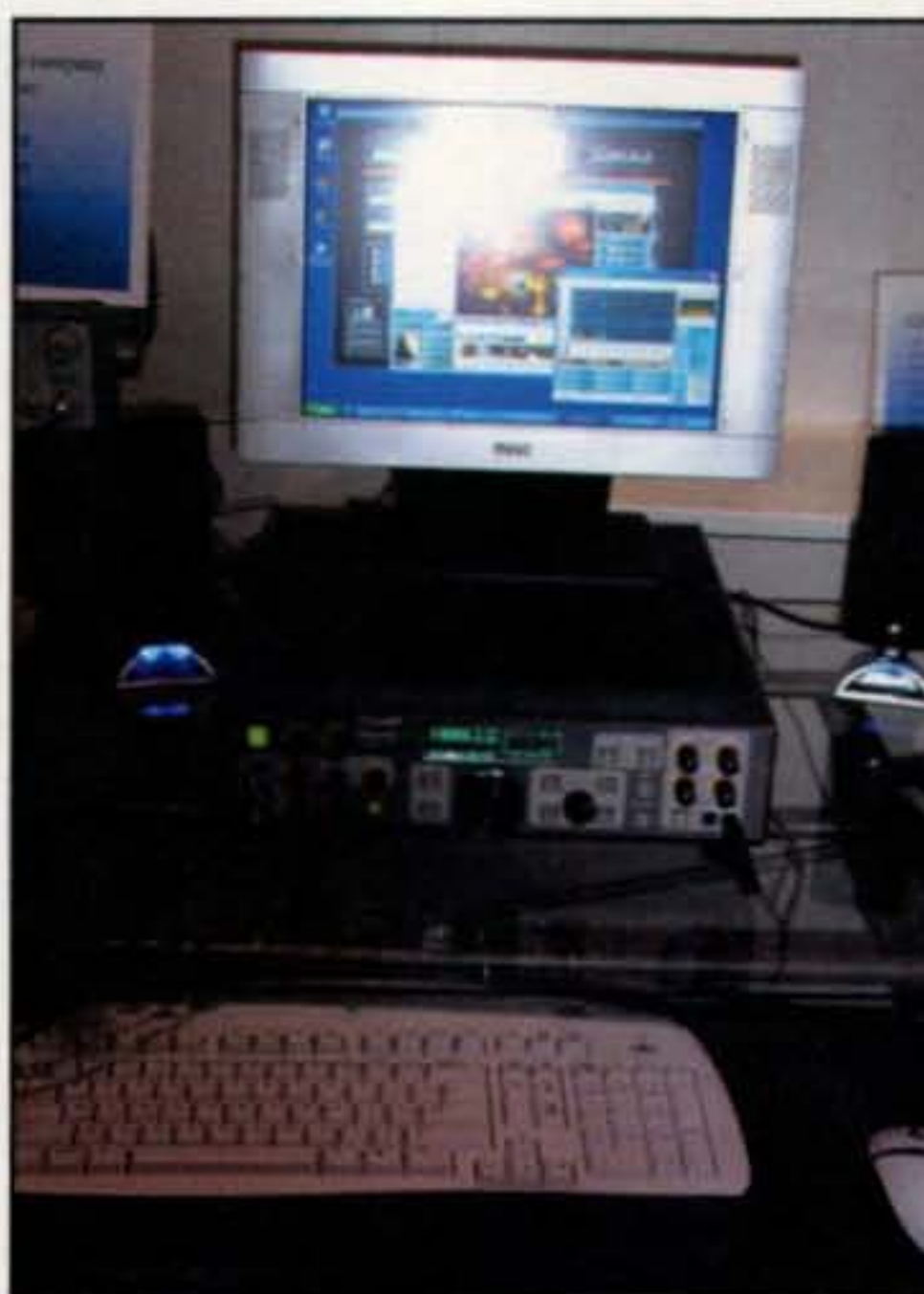
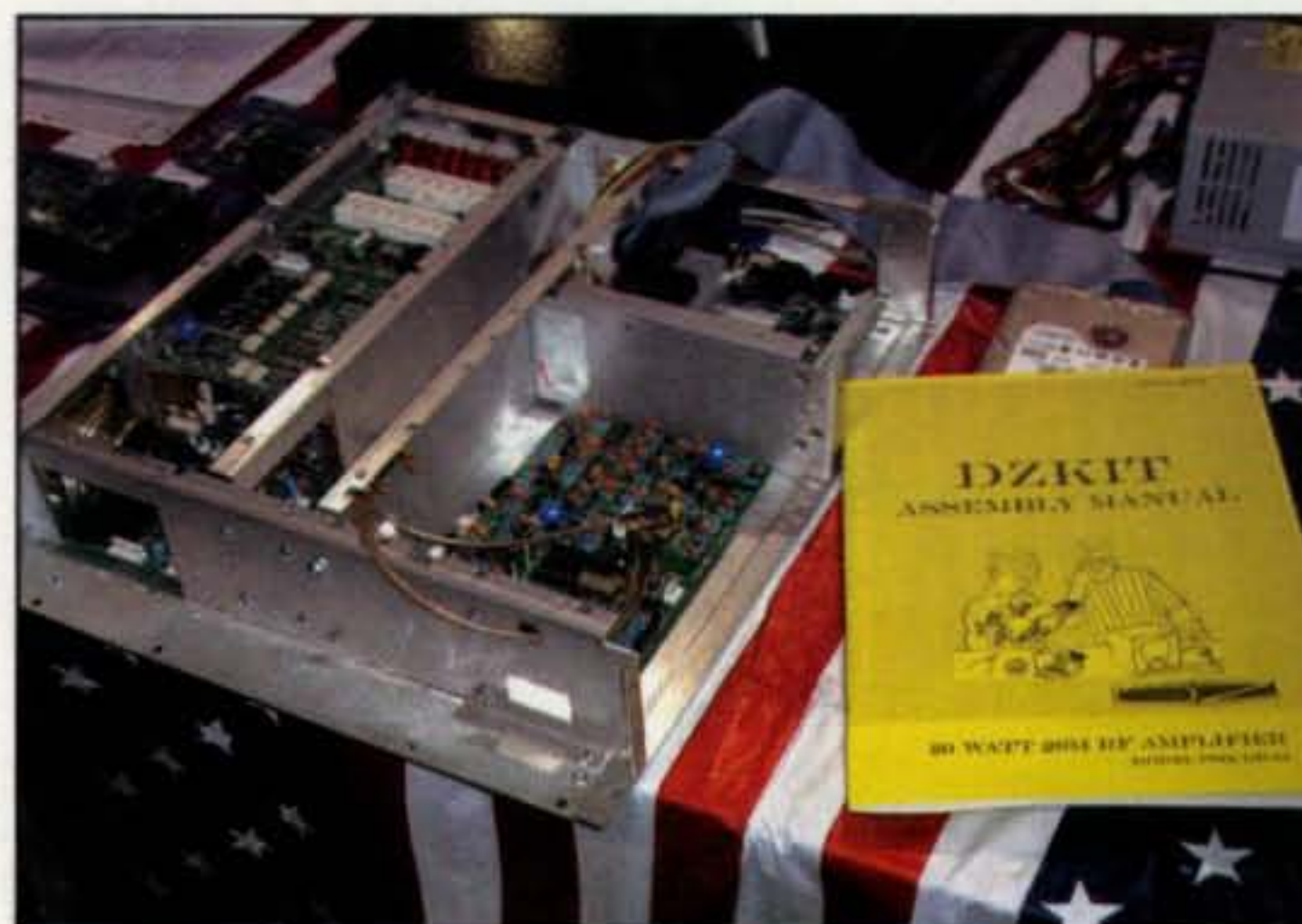


Photo A— The Sienna transceiver kit from DZkit includes a built-in personal computer running Windows XP®. The monitor and keyboard are plugged directly into the radio!



Photo C— Hamation's Shack-LAN suite of station-control equipment for contesters is built around this computer, which runs on 12 volts DC!

Photo B— Heathkit-style manuals are a key element in DZkit's plan to help encourage the current boom in kit-building by hams. →



*Editor, CQ
e-mail: <w2vu@cq-amateur-radio.com>

Eight New Products This Year, And More to Come!

While the Year is Just Half Over, LDG Electronics has Already Introduced More New Products than Most Manufacturers Release All Year!

It has already been a busy year at LDG Electronics. To start the year we released the AT-200Pro automatic tuner, our first auto tuner designed for today's high power transceivers. Then you saw the release of the TW-1, LDG's first SWR/wattmeter – a *talking* wattmeter – that appeals to the sight impaired, the "bi-focal" generation, and hams interested in the novelty of having a talking wattmeter. **Coming soon is the TW-2 talking SWR/wattmeter for VHF and UHF!**

We recently released the DTS line of antenna switches. These innovative antenna switches feature automatic grounding when you shut down and are able to handle up to 1500 watts. The DTS line also includes an optional remote control, allowing you to keep your desk clean, with only a small remote necessary to switch antennas.

The next product in our pipeline is the Z-11Pro, the long awaited follow-up to the legendary Z-11. The Z-11Pro is everything you've always wanted in a small, portable tuner designed from the ground up for battery operation.

Another Innovation This Year: Two-year Warranty on All LDG Products

Every product we sell now comes with a 2-year warranty. So when we say that our products are thoroughly tested, we have high levels of quality control, and we over-engineer our products to make them last longer – you will know that we mean it.

At LDG Electronics we have always been the innovators in the Ham Radio industry. Now we offer a 2-year warranty on all of our products!



New! The DTS-Series Antenna Switches



Tired of that tangled mess of coax and pigtailed in your shack? Always worrying about whether you set the ground switch on your antenna before you left your shack? LDG's new DTS-4 antenna switch is for you. Instantly switch your rig between 4 antennas with the press of a button! Features automatic grounding when you shut your rig down. Purchase the optional DTS-4R remote control and put the DTS-4 anywhere indoors and operate it from your desk. The DTS-4 handles up to 1500 watts of RF power on HF (250W on 6M), and can be used with any coax-fed antenna.

List Price DTS-4 \$79, DTS-4R \$39.



The Return of a Legend! The Z-11Pro

Combining features and value, the light weight Z-11Pro is only 5" x 7.7" x 1.5". It handles 0.1 to 125 watts, making it ideal for both QRP and standard 100 watt transceivers from 160 – 6 meters. The Z-11Pro uses

LDG's state-of-the-art processor-controlled switched-L tuning network. It will match dipoles, verticals, inverted-Vs or virtually any coax-fed antenna. The Z-11Pro has 8,000 memories in LDG's exclusive "3D Memory" array.

List price \$179.

**Free interface cable for Icom or Yaesu radios
with Z-11Pro purchase. Please visit our
Web site for more information.**



The 200 Watt AT-200Pro with 16,000 "3-D Memories"



Our first auto tuner specifically designed for today's high- powered transceivers.

The AT-200Pro features LDG's new "3-D memory system" allowing up to eight antenna settings to be stored for each frequency. Rugged and easy-to-read LED bargraphs show power and SWR, and a Function key on the front panel allows you to access data like mode and status.

List price \$249.

NEW! The "Talking" SWR/Wattmeter

The TW-1 Talking 2 kW SWR/Wattmeter provides an aural spoken indication of power and SWR using a digitally recorded voice. It is ideal for the vision impaired, for those of us in the "bi-focal set", or just for those times when you need to be looking somewhere else. At the press of a button, the TW-1 speaks the forward power, reverse power or SWR. Three languages are selectable: English, Spanish and German. It includes its own internal speaker; no external audio hookups are needed. Available soon: the TW-2 UHF/VHF. List price \$149.

**"The Forward
Power is
112 Watts"**



**To order, contact your
favorite dealer.**



LDG Electronics, Inc.
1445 Parran Road,
St. Leonard, MD 20685
Phone: 410-586-2177
Fax: 410-586-8475

Prices and specifications are subject to change.

**FREE Z-11Pro Interface cable for
Icom or Yaesu with Z-11Pro Purchase**

Visit our Web site for the mail-in rebate form:

www.ldgelectronics.com

Offer expires September 30, 2005



Photo D—Shack-LAN's rack-mount hardware includes bandpass filters, antenna switches, and a relay driver that runs everything over a standard Ethernet network.



Photo E—miLOG from HamToys.com is a full-featured suite of logging, contesting, and award-tracking programs.

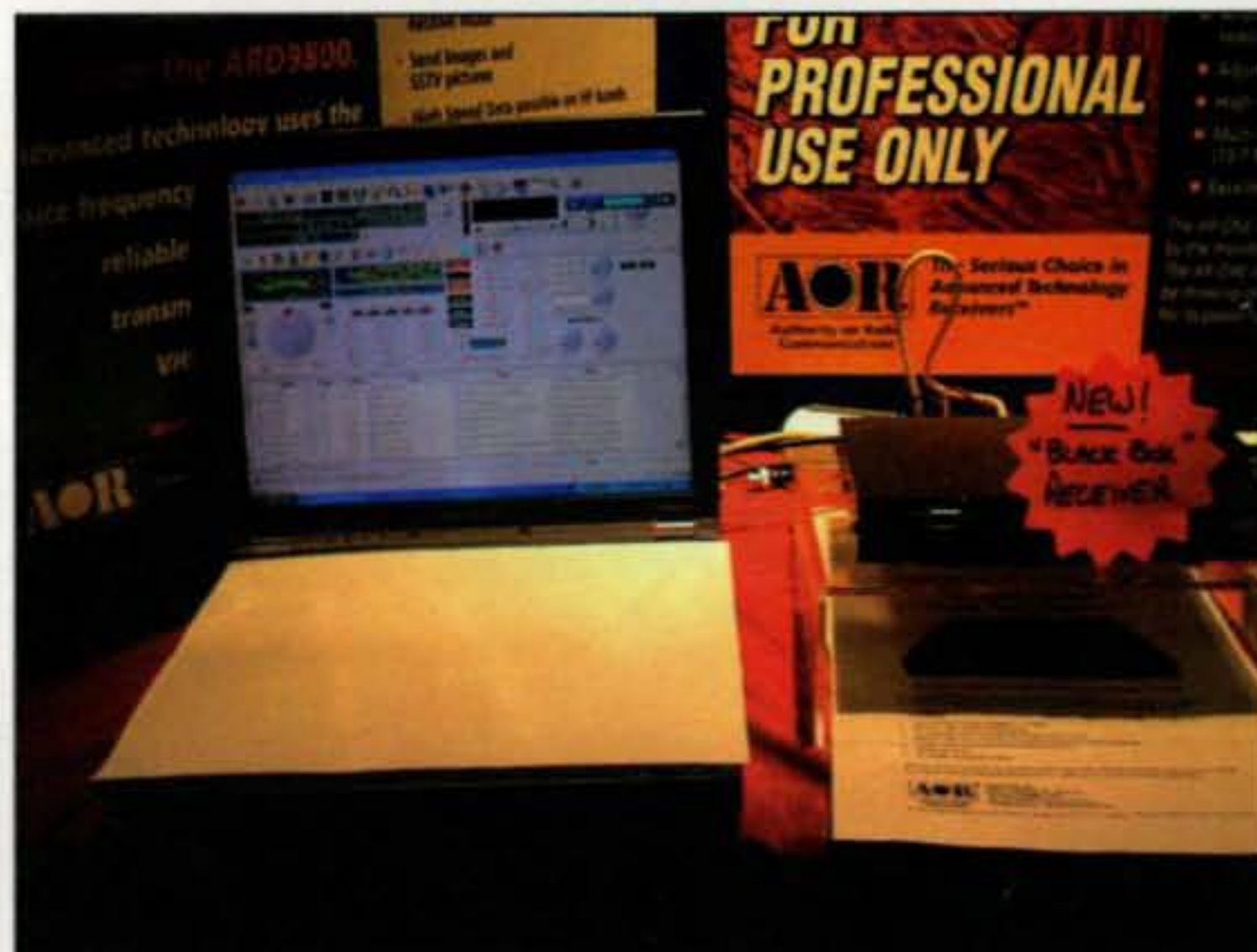


Photo F—AOR's SR-2200 "Black Box" receiver (mostly hidden behind the red tag) has no knobs, dials, or readout of its own. Everything is controlled through a computer using the included software.



Photo G—Palstar's AT-Auto antenna tuner is compatible with computer data ports on most ICOM, Kenwood, and Yaesu transceivers, allowing it to track band changes and automatically make adjustments.

Photo H—→ Green Heron Engineering's Universal Digital Rotor Controller permits manual or automatic control of multiple rotors, even from different manufacturers.



turers) and move them together, separately, or even in opposition to each other. Plus, you can just dial in the compass bearing to which you want to turn the antenna(s) and it will take it/them there, taking care of all braking functions and ramping the speed up and down to prevent excessive stress when starting and stopping rotation (photo H).

Finally in our featured category, Timewave Technology has taken the venerable Smith Chart for calculating complex antenna impedances and built it—in software—right into its "AntennaSmith™" antenna impedance analyzer, which covers 500 kHz to 60 MHz and displays SWR, impedance, reactance, and the reflection coefficient. It can be operated independently or remotely via computer interface, and might come in handy to check out ... a new antenna.

is included and no separate PC is needed to run the station control network.

Sharing the booth with Hamation was miLOG from HamToys.com. miLOG is a software suite (photo E) that includes a general logging and DX tracking program, a station-control program for up to two radios and eight antennas, a contest logging program, and the ability to network up to 25 computers via Ethernet or the internet. The software can also be set up to send a message to your pager or text-messaging equipped cell phone with DX spots as they appear on the cluster. AOR's SR-2200 "Black Box" receiver (photo F) doesn't have a built-in computer but it needs to be connected to a computer to do anything. All of the controls are in software, and you need your computer to control the radio. Designed for the serious listener, it covers 25 MHz to 3 GHz, in AM, SSB, CW, and three FM modes; plus four selectable levels each of high-pass and low-pass filters.

The Palstar AT-Auto (photo G) is a computerized antenna tuner with a data interface connection to communicate with computer-controllable radios from ICOM, Kenwood, Ten-Tec (Orion only), and Yaesu. It "talks" to the radio and automatically follows band changes and retunes as needed. It will also work without automatic control if your rig isn't compatible with it. Palstar is also in the process of automating its BT-1500A balanced line tuner. Both units are expected to be available this fall.

Green Heron Engineering, yet another newcomer to the ham radio marketplace, introduced the RT-20 Universal Digital Rotor Controller, which uses PIC microprocessor technology to tie together multiple rotators (even from different manufac-

Antennas and Accessories

The most popular category for new products this year was antennas, with more than a dozen introduced in Dayton. AOR alone has four new antennas, a wideband receiving loop (the LA380) and three discones, the DS3000, covering 75 MHz–3 GHz (and okay for transmitting); the DA5000 for receiving between 700 MHz and 3 GHz; and the DA3000, receiving from 25 MHz



Photo I— A telescoping quarter-wave vertical for 40 meters was one of two new vertical antennas introduced by DX Engineering.



Photo J— OptiBeam's new 5-band HF Yagi, the OB11-5, was on display at Dayton. It covers 20–10 meters with 11 elements on a 20-foot boom. The company also introduced the OB16-5, which covers the same bands with 16 elements on a 33-foot boom, and a 2-element 80-meter Yagi, the OB2-80+. (Photo courtesy Array Solutions)



Photo K— One of MFJ's 22 new products introduced at Dayton was the MFJ-1625 antenna for mounting temporarily on a window frame or balcony. Its 22.5-inch whip telescopes out to 12 feet, and the antenna covers 80–6 meters. (Photo courtesy MFJ)

to 2 GHz. Cushcraft introduced three new models, focusing on the fact that lower frequency bands will be favored during the coming low point of the sunspot cycle: the MA160V 160-meter vertical, the MA8040V vertical for 80 and 40 meters, and the MA3040D rotatable dipole for 40 and 30 meters. DX Engineering followed the same path, introducing a push-up quarter-wave vertical for 40 meters (photo I) and announcing an 80-meter vertical due out this month.

German antenna manufacturer OptiBeam (represented in the U.S. by Array Solutions) introduced three new antennas at Dayton: two varieties of a 6-band 20–10-meter Yagi, one with 11 elements on a 20-foot boom (photo J)

and the other with 16 elements on a 33-foot boom (with plans for a summertime introduction of a third version, adding two elements on 40 meters), plus a 2-element 80-meter Yagi on a 36-foot boom.

MFJ brought out several antennas for those operating from restricted spaces, including a window/balcony antenna (MFJ-1625 [photo K]) and three compact loop antennas with integral tuners, the MFJ 933, 935B, and 936B. MFJ also introduced several antenna accessories, including the 989D 1500-watt antenna tuner, the 911H switchable 1:1 or 4:1 balun, the 907 variable RF transformer, and the 853 clamp-on RF current meter. Plus, its Ameritron division brought out a new automatic remote antenna switch capable of selecting between eight different antennas.

Another new antenna accessory is the PowerMaster from Array Solutions. It's a digital SWR and wattmeter with many parameters able to be customized in software, as well as alarms for too-high SWR and power that's either too high or too low. There are two models, one good up to 3 kilowatts, the other to 10 kW. Both operate between 1.8 and 54 MHz with an accuracy level of 5% (photo L).

Radios

Six transceivers and two amplifiers made their debut at this year's Hamvention. In addition to DZ Kit's Sienna and AOR's "black box" receiver (see above), Alinco introduced a new dual-band FM mobile rig, the DR-635T (photo M), which offers cross-band repeat and overheating protection; and ICOM brought out its new IC-7000 HF/VHF/UHF transceiver (photo N), which, despite its similarity in size and style to the IC-706 series, is *not* designed to replace that all-time favorite. The IC-7000 uses the same DSP (digital signal processing) engine as the top-of-the-line IC-7800 and



Photo L— The PowerMaster from Array Solutions is a software-driven SWR and wattmeter featuring a separate RF sensor and customizable programming. (Photo courtesy Array Solutions)



Photo M—Alinco introduced a new dual-band mobile rig, the DJ-635, with full duplex and cross-band repeat capability. It transmits on 2 meters and 70 centimeters, with extended receive covering 108–174 MHz, 335–480 MHz, and the FM broadcast band. (Photo courtesy Alinco)

Photo N—ICOM's new entry at Dayton was the IC-7000, a mobile-size HF/VHF/UHF rig that incorporates many digital signal processing features of the company's high-end transceivers in a small package. →

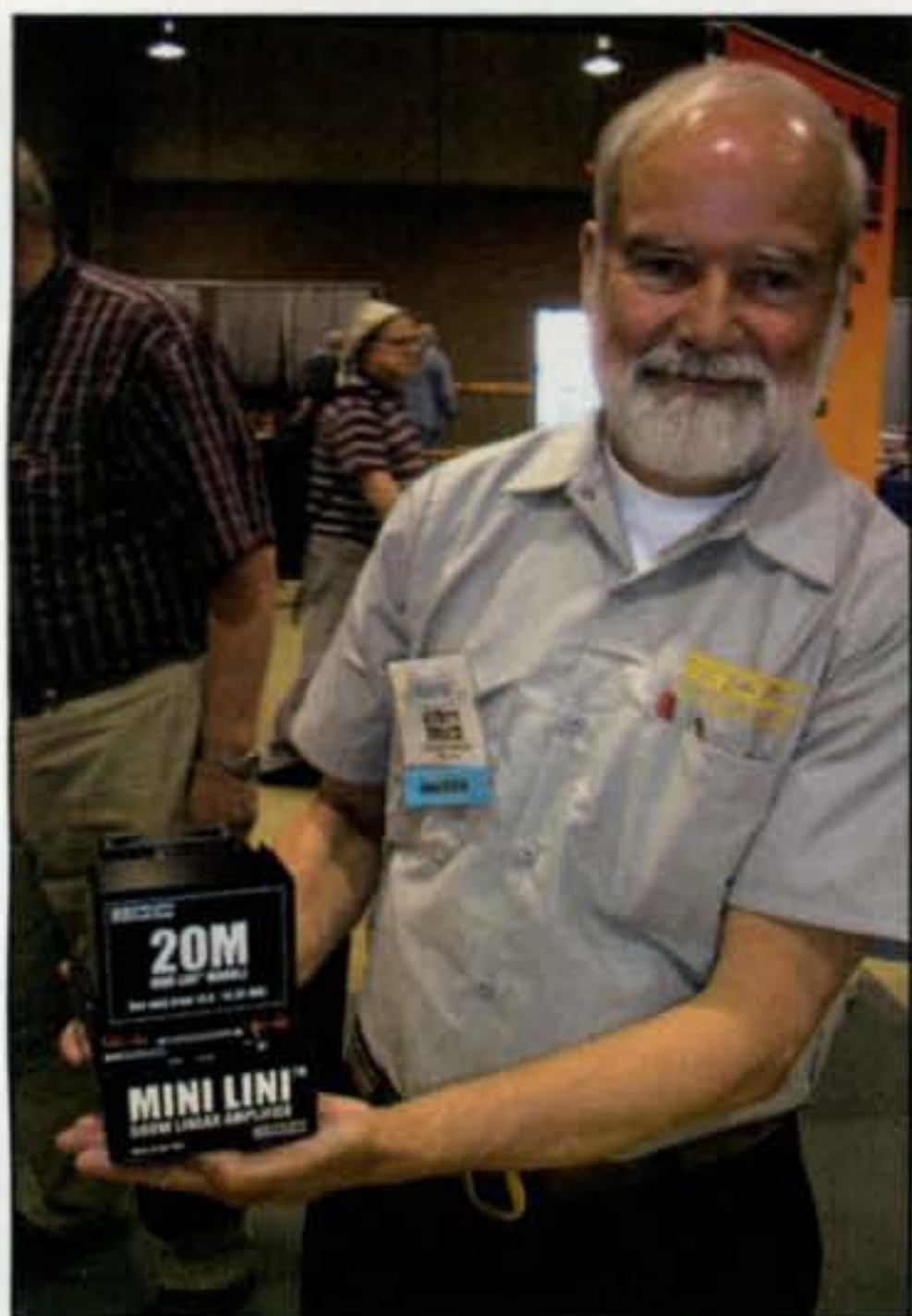


Photo O—A 500-watt linear you can hold in one hand? As SGC's Bruce Franklin, K7DYY, demonstrates, the new SGC MiniLini single-band amplifier weighs in at less than five pounds. Bruce is holding the 20-meter version. Additional modules will let you use the amplifier on other bands.

756Pro and includes RTTY/PSK decoding. It's expected to retail for about \$1500 once it gets FCC approval and hits the ham stores, most likely sometime this fall. Yaesu (Vertex-Standard) introduced two 2-meter handhelds, the VX-120 and the VX-170. It appears that the main difference between them is that only one (the VX-170) has a full DTMF tone pad.

One new amplifier is the "MiniLini" from SGC, and it's amazing because of its small size, weighing in at just four



Photo P—Ameritron's new 500-watt mobile amplifier is all solid-state and comes with an optional remote head. It covers 160–15 meters, with a 12–10 meter add-on kit available with proof of ham license.

pounds, including AC power supply (photo O). Yet it puts out 500 watts on your choice of 160, 80, 40, 20, 17, or 15 meters. The standard "MiniLini" comes with a 20-meter module; additional band modules are sold separately.

The second new amp (photo P) comes from MFJ's Ameritron division. The RCS-12 is a solid-state no-tune mobile amp putting out 500 watts (PEP) on SSB or 400 watts CW on 160 to 15 meters (an additional kit will add 12 and 10 meters, provided you show them your ham license), with an optional remote head.

Station Accessories

One of the most interesting station accessories in these times of impending interference from broadband over power lines (BPL) and existing interference from just-plain power lines is MFJ's model 856 power line noise finder. It's a 135-MHz receiver that includes a meter and a 3-element beam antenna, allowing you to walk or drive through

noisy areas to track down the source of interfering signals. (Theoretically, Access BPL is only supposed to operate up through 80 MHz, but both the BPL industry and the FCC appear to be unaware of harmonics, so it's a pretty good bet that it won't be too hard to track BPL interference with a 135-MHz receiver.—ed.)

AOR has two new station accessories—the SR2000 frequency monitor (photo Q), which combines a 25-MHz to 3-GHz receiver with a spectrum display monitor that can also be used as a programmable band scope, monitoring activity (or finding open spaces) on a given ham band, plus a new "little brother" to the ARD-9800 digital voice modem. The new ARD-9000 uses the same protocol as the 9800 and includes many of its features, but comes in with a lower price tag, which should make this new mode more affordable to more hams.

Heil Sound has added to its already impressive array of microphones with three new models, the PR-20, PR-30,

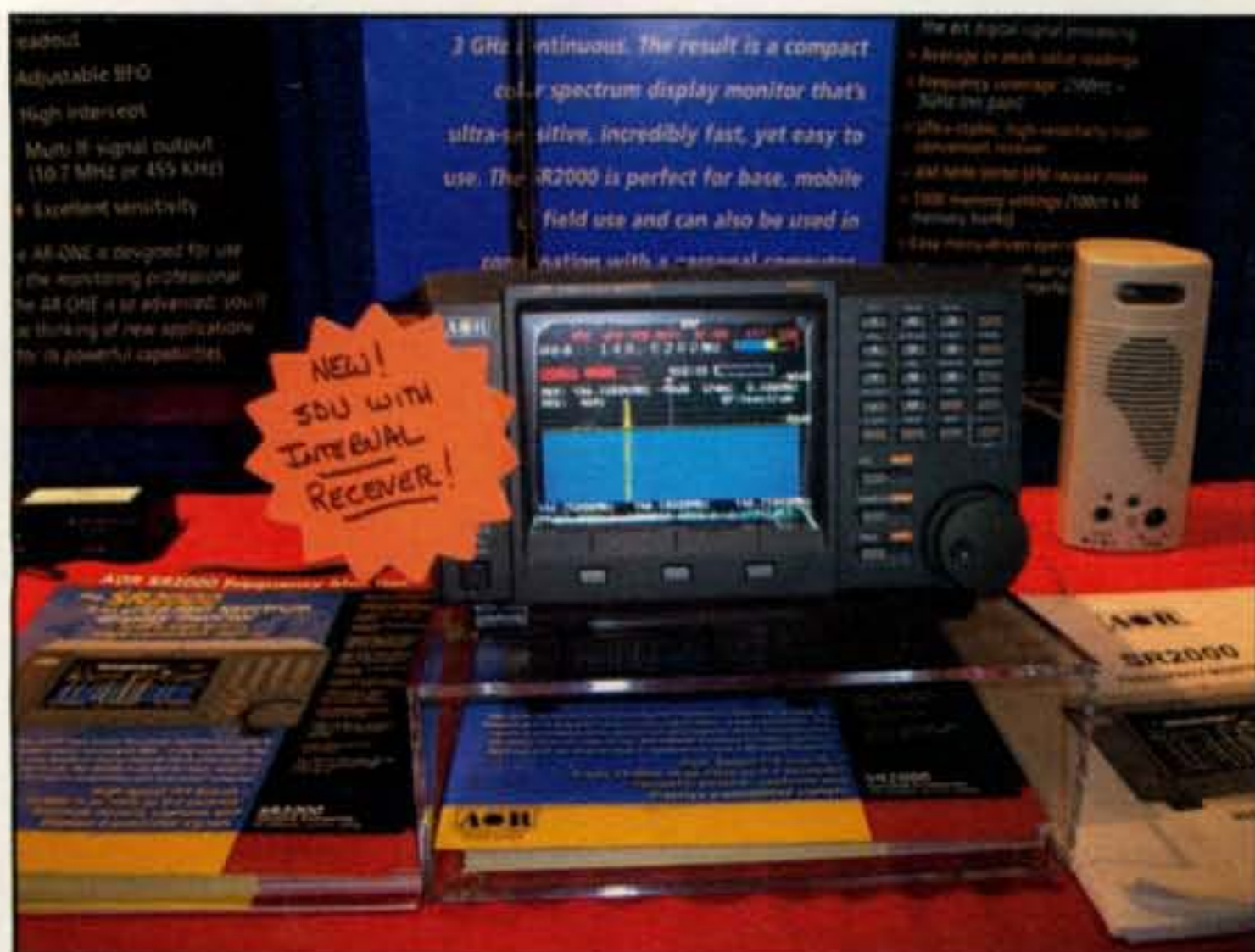


Photo Q—AOR's SR-2000 Frequency Monitor includes a built-in receiver and will display up to 10 MHz of spectrum at a time. It covers 25 MHz to 3 GHz.

charging something as big as a car battery and providing backup power to radios and other 12-VDC gear. It has two inputs, one for a standard power supply and one for a battery, plus one output to a radio or whatever else you're powering. Under normal conditions, it will route power from the power supply to the radio and to charge the battery. If the main power goes out, it instantly switches over to battery power either until the power returns or the battery is exhausted.

That's a quick look at the new products we found on our lightning tour of the Hamvention on Sunday morning. Watch for more information on many of these items here in *CQ*, both in advertisements and product reviews. ■



Photo R—The PR-40 is one of three broadcast-quality mics introduced at Dayton by Heil Sound. The PR-20, 30, and 40 are appealing to hams looking for full-bodied audio.



Photo T—West Mountain Radio's PWRgate PG40S is a combination battery charger and backup power supply (using your battery). You plug in a regular power supply and a rechargeable battery on the input side and your rig on the output side. With normal power, the power supply will run your rig and keep the battery charged. If the power goes out, the PWRgate will instantly switch over to the battery and keep your radio running.

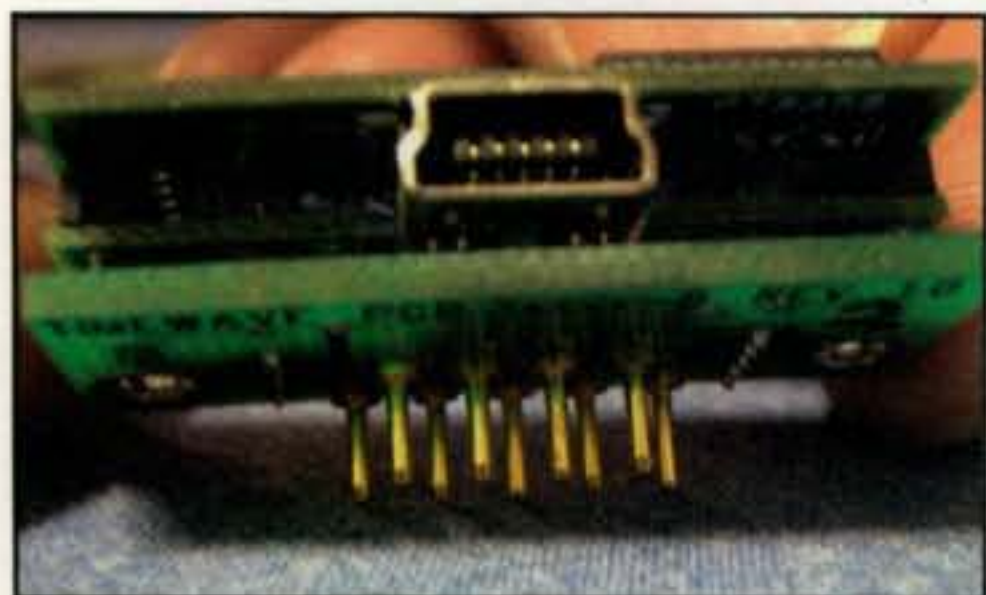


Photo S—This little board may turn out to be a big hit. It's a circuit that you install in older equipment to replace an RS-232 port (DB-9 or DB-25) with a USB port to make it compatible with the current generation of computers. It's from Timewave and should be available in the fall.

and PR-40 (photo R). All three are essentially designed for broadcast and recording use, but have already become popular among hams looking for the greatest possible range of audio from their amateur transceivers.

Timewave introduced two new station accessories at the Hamvention.

First is the HSC-99 HamHub station controller, which is a central control point for microphone, headset, TNC or digital modem, footswitch, rotor, transceiver, and computer. The second is something that would find a use in many hamshacks with older gear and newer computers; it's a circuit board (photo S) that fits in a variety of RS-232 equipped ham rigs and accessories, replacing the RS-232 connector (DB-9 or DB-25) with a USB connector! This is not a patch cable. Rather, it is a permanent USB replacement for the original RS-232 connector. It will retail in the \$75–\$100 range and should be available by the time you receive this issue.

Finally, West Mountain Radio rolled out its PWRgate PG-40S (photo T), a four-stage battery charger capable of

PowerPort™ TH-F6A
Leather or Neoprene pouches
 New for the Kenwood TH-F6A. Beautiful glove leather with a spring steel belt clip or sporty neoprene in red or black. Well padded and water proof material.

HI-N5X HI-4X

STARTING AT \$14.49 800-206-0115 www.powerportstore.com

HF Antennas do not need to be long & skinny. Short, fat ones work great, too!

ISOTRON
 Antennas for 160 - 6 meters
 The unique design gives it a leading edge.
 Great Performance • Easy Installation

www.isotronantennas.com
719-687-0650
 BILAL COMPANY
 137 Manchester Dr. • Florissant, CO 80816

TOROID CORES

Ferrite and iron powder cores. Free catalog and RFI Tip Sheet. Our RFI kit gets RFI out of TV's, telephones, stereos, etc.

Model RFI-4 \$25.00
 + \$6 S&H U.S./Canada. Tax in Calif.
 Use MASTERCARD or VISA

PALOMAR
 BOX 462222, ESCONDIDO, CA 92046
 TEL: 760-747-3343 FAX: 760-747-3346
 e-mail: info@Palomar-Engineers.com
www.Palomar-Engineers.com

Ground Plane Antenna, ATU, Antenna Switch & Preamp, and more

This month we'll focus on some noteworthy radio ham shack accessories, antennas and antenna accessories, computer gizmos, radio resources, and more items of timely interest. Are you ready? Well then, let's begin.

Accessories for the Shack

New from Novatech Instruments. If only the best, top-quality gear will do in your radio ham shack, workshop, or lab, Novatech Instruments has another first-class instrument for you. It's the 2975AR Disciplined Rubidium Frequency Standard (photo A). The benchtop 2975AR features a synthesized output that can generate any frequency from 100 Hz to 50 MHz with a resolution of 1 μ Hz, along with standard outputs of 5 MHz and 10 MHz.

Featuring an auto-adaptive 1-pps (pulse per second) disciplining algorithm, these models provide stellar performance from long-term stable 1-pps sources such as GPS (Global Positioning System) receivers. Front-panel controls and display allow setting of the synthesized output, with the second line of the display indicating 1-pps tracking status.

For more information and product pricing, contact Novatech Instruments, Inc., P.O. Box 55997, Seattle, WA 98155-0997 (206-363-4367; e-mail: <sales@novatech-instr.com>; on the web: <http://www.novatech-instr.com>).

Antennas and Antenna Accessories

Open Season on Rubber Ducks? Many radio amateurs own a 2-meter handheld transceiver (HT) and have endured the vendor-supplied "rubber duck antenna." If you've ever tested that rubber duck with a field-strength meter, you may have been surprised to find how little of your HT's power is actually getting out. A more efficient radiator for your HT may be needed.

The GP-2 Two-Meter Quarter-Wave Ground-Plane Antenna (see photos B and C), designed and manufactured by Bosque Communications, Inc., is a 2-meter quarter-wave ground-plane antenna built for efficient radiation, portability, rapid assembly, and durability. The GP-2 is furnished in six parts: five identical lightweight aluminum elements and a rugged mounting bracket. The heavy-gauge aluminum bracket is formed to position the ground radials to achieve optimum VSWR—reportedly less than 1.2:1 over the entire 2-meter band.

Unlike mag-mount antennas, the GP-2 provides its own counterpoise ground plane with four radial spokes. As anyone who has built an antenna with

*289 Poplar Drive, Millbrook, AL 35054-1674
e-mail: <w8fx@cq-amateur-radio.com>



Photo A—Novatech Instruments has another first-class instrument for you, the 2975AR Disciplined Rubidium Frequency Standard. The benchtop 2975AR features a synthesized output that can generate any frequency from 100 Hz to 50 MHz with a resolution of 1 μ Hz, along with standard outputs of 5 MHz and 10 MHz. (Photo courtesy of Novatech Instruments)



Photo B—The Bosque Communications GP-2 Two-Meter Quarter-Wave Ground-Plane Antenna is built for efficient radiation, portability, rapid assembly, and durability. One speedy, simple, and inexpensive mount to use is a 20-foot painter-push-up pole. (Photo courtesy of Bosque Communications)

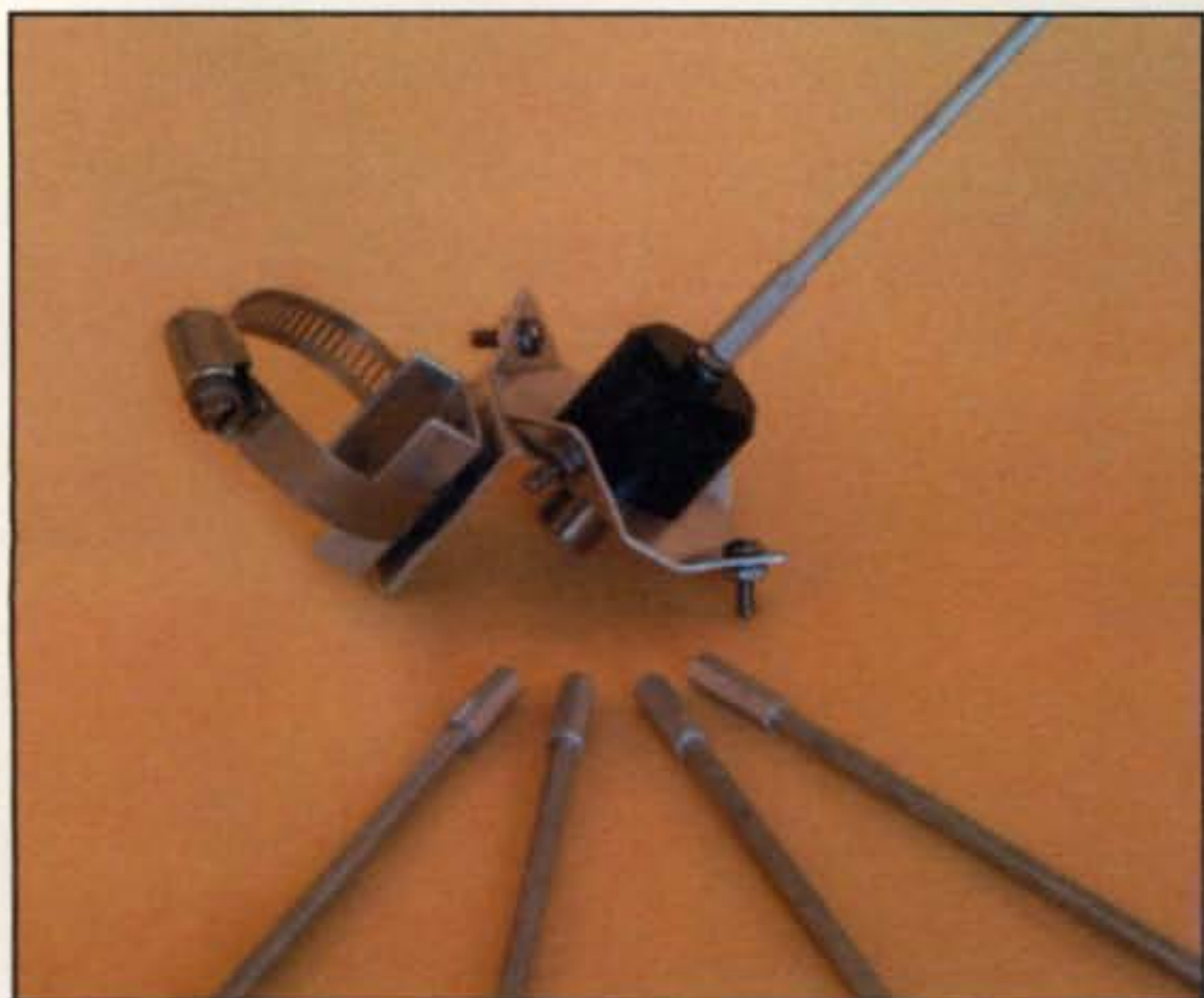


Photo C— The GP-2 antenna is furnished in six parts: five identical lightweight aluminum elements and a rugged mounting bracket. The heavy-gauge aluminum bracket is formed to position the ground radials to achieve optimum VSWR. (Photo courtesy of Bosque Communications)

an SO-239 and welding rods knows, the lengths and angles of the radials are very important.

The GP-2 comes equipped with a stainless-steel clamp for easy mounting atop an existing or temporary mast. The antenna excels when mast-mounted thanks to the built-in radials; one inexpensive mount to use is a 20-foot painter-push-up pole.

The six parts that make up the GP-2 weigh less than a pound and are shipped and stored in a cylindrical mailing tube. There is plenty of room in the tube to also hold a convenient length of RG-58A coaxial cable. The stored antenna and coax packs easily in your emergency "grab-'n-go" kit, ready for use at any emergency station with your 2-meter transceiver.

Assembly is accomplished quickly. All the radiating elements are identical, so there is no chance of incorrect assembly. Each element is simply hand-threaded onto the mounting bracket. The mast mount is a standard 2-inch pipe clamp that can be tightened with a slot screwdriver or 56-inch nut driver. The clamp will fit snugly around a simple painter-pole (typically 7/8 inch in diameter) or other antenna mast up to 2 inches in diameter.

The GP-2 comes with a standard SO-239 connector attached to a heavy-gauge aluminum mounting bracket. A durable black Delrin® insulator protects the connector and provides a sturdy mounting point for the vertical element. The five elements are made from 6061-T aluminum; all the other GP-2 hardware is stainless steel, durable, and lightweight.

The GP-2 is designed and manufactured by Larry Bush, W5NCD, and sells for an affordable \$36.50 plus shipping. It comes in a durable mailing tube for shipping and transport. If you like, Larry will also include one of two coax assemblies—either a 12½-ft. length of flexible, lightweight RG-58A with a PL-259 on one end and a BNC on other end (part #UB12, \$9.95 each), perfect for use with your HT; or a 25-ft. length of RG-58A with a PL-259 on both ends (part #UB25, \$16.95 each), ideal for fixed/mobile units. All items carry a 15-day money-back guarantee and one-year war-



Photo D— Elecraft offers the T1 Miniature 20-Watt Automatic Antenna Tuner with Optional Remote-Control Adapter for the FT-817 Transceiver. The T1 is a standalone, 160-through 6-meter ATU that can be used with any low-power transceiver. (Photo courtesy of Elecraft)

ranty. Contact Bosque Communications, Inc., Attn: Larry Bush, W5NCD, 359 Arrowhead Point, Waco, TX 76712 (254-744-2425; e-mail: <lbush@w5ncd.com>; on the web: <<http://w5ncd.com>>).

Elecraft Stand-Alone ATU. Elecraft has introduced the T1 Miniature 20-Watt Automatic Antenna Tuner (ATU), with Optional Remote-Control Adapter for the Yaesu FT-817 Transceiver (photo D). Not much larger than a deck of cards, the T1 is a standalone, 160- through 6-meter ATU that can be used with any low-power transceiver. The tuner's seven-



Photo E— J-TEC, LLC offers the SS-811 Soft-Start Module for the Ameritron 811 Linear Amplifier. The new unit extends the life of the 811A tubes and power-supply components by limiting the inrush current to less than 5 amps at power turn-on. (Photo courtesy of J-TEC)



Photo F— The J-TEC ASAP-2 Antenna Switch and Preamp is a receive unit that covers 1.8–30 MHz and is for use with HF transceivers running up to 150 watts CW. See this month's column for details. (Photo courtesy of J-TEC)



Photo G— Here's the rear panel of the J-TEC ASAP-2 Antenna Switch and Preamp. It lets you select one of four receive antennas; you also can select the transmit antenna as the receiving antenna. (Photo courtesy of J-TEC)

inductor, seven-capacitor Lnetwork provides a wide matching range and power-handling capability of up to 20 watts SSB/CW, 10 watts AM/FM/digital. Antenna matching can be accomplished using a constant carrier, SSB voice, or a CW keyer, so there's no need to change modes.

Elecraft's proven multi-stage tuning algorithm always aims for the lowest possible SWR. It doesn't stop trying at 1.5:1 like most other tuners, so no manual fine-tuning of the ATU's settings is required. The T1 saves many previous matches in its EEPROM, so most retunes will take just 1 to 2 seconds.

Yaesu FT-817 users will find the T1 especially convenient thanks to the optional T1-FT817 remote-control cable. This "smart" cable provides instant recall of per-band ATU settings on any band change at the transceiver, without the need to transmit. Full details on remote control are found in the owner's manual, so users of other transceivers (commercial or home-built) may also be able to make use of these capabilities.

Three LEDs (green, yellow, and red) are used for power and SWR indications. By using combinations of LEDs for intermediate values, the three LEDs function as a five-element bargraph. This capability provides useful metering for QRP transmitters that have no power or SWR measurement capability of their own.

The internal 9-volt battery may provide a year or more of service, since the unit uses latching relays and turns itself off automatically. The T1 checks the battery on every power-up and provides a low-battery indication. The T1's rugged, small (4.4"L × 2.5"W × 0.9"H) enclosure is ideal for backpacking and travel. All controls are clearly labeled, and a quick-reference guide is included on the panel.

The T1 is available factory assembled and tested for \$159, or as a complete, easy-to-build kit for \$135. The kit version requires no alignment, and there are no surface-mount parts to install. The T1-FT817 remote-control cable is \$49 (assembled).

Contact Elecraft Inc., P.O. Box 69, Aptos, CA 95001-0069 (831-662-8345; e-mail: <sales@elecraft.com>; on the web: <<http://www.elecraft.com>>).

Two New Products from J-TEC. Jim Andem, KB1SH, of J-TEC, LLC, has announced the SS-811 Soft-Start Module for the Ameritron® 811 Linear Amplifier (photo E). This unit extends the life of the 811A tubes and power supply components by limiting the inrush current to less than 5 amps at power turn-on.

The full high-voltage (HV) level is applied after about 2 seconds, allowing a soft-start for the tube filaments, power-supply electrolytic-filter capacitors, and diode rectifiers. Opera-



Photo H— New this summer from LDG Electronics is a reincarnation of the popular Z-11 tuner, the Z-11Pro, a small, portable tuner designed from the ground up for battery operation. (Photo courtesy of LDG Electronics)



Photo I— LDG also offers a line of electronically controlled coax switches. The DTS-4 is a 1500-watt desktop switch with four positions; it has an optional remote control, the DTS-4R, that allows the DTS-4 to be placed at a convenient remote location. (Photo courtesy of LDG Electronics)



Photo J— New from MFJ is the MFJ-5420 Sound Card Extension Box, labeled "Media Hub" in this photo. It's said to be great for use with MFJ-1275/1279 Sound Card Interfaces. With it you can conveniently put sound-card controls at your fingertips. (Photo courtesy of MFJ Enterprises)

tion is indicated by dimmed panel lights at turn-on and the HV swinging slowly up to 1000–1200 volts, followed by a relay click, bright panel lights, and a meter indication at the full 1700-volt level.

The module easily mounts behind the internal shield plate in the amplifier with provided hardware; there are only two holes to drill and three wires to solder. Step-by-step instructions, a typical installation photo, and wiring diagram are provided.

While the module is designed for the Ameritron 811 Amplifier, it can be used with other 115-VAC linear amplifiers having a maximum AC current draw up to 15 amps continuous; contact J-TEC for details. The SS-811 is \$49.50 post-paid via U.S. Priority Mail.

Jim also offers the new ASAP-2 Antenna Switch and Preamp (photo F). This receive unit covers 1.8–30 MHz and is for use with HF transceivers running up to 150 watts CW. The unit enables the operator to select one of four receive antennas, such as Beverages, shielded loops, whips, or snake-type low-noise receiving anten-

D-STAR System "Crosses the Pond" to Europe from Dayton Hamvention

TECH TALK

In a live demonstration by Icom America Inc. at the 2005 Dayton Hamvention®, the D-STAR system went intercontinental as hams on the Hara Arena floor were linked live with D-STAR systems in England and Dallas Texas. Internet gateways, an integral part of the D-STAR architecture, provided "armchair copy" for hams on each end of the link. Earlier this year, D-STAR repeater systems in Texas, Washington state, and British Columbia were successfully linked in final development tests. The D-STAR system will also be demonstrated and discussed in detail at the ARRL/TAPR Digital Communications Conference in Santa Ana, California this coming September (www.tapr.org/dcc.html).



In the Dayton demonstration an ID-RP2 repeater, the latest D-STAR repeater model, was set up on the Hamvention floor and contacts through the system were made using ID-1 1.2 GHz D-STAR radios. The D-STAR system in England was operated by G4ICM in Herne Bay, Kent and consisted of an ID-RP1 repeater. Both data and voice communications

were demonstrated, including the ability of the D-STAR system to support a standard Web browser interface and for users to exchange data using a handheld radio.

The new ID-RP2 repeater system incorporates all of the ID-RP1 repeater functionality into components mountable in a standard 19" rack. In addition, the ID-RP2C repeater controller is now a separate component, allowing repeater system builders full flexibility in adding voice and data repeaters. The first public installations of D-STAR repeaters and networks will be based on the ID-RP2 package.

D-STAR repeaters are connected together either by direct RF links or over longer distances by Internet "gateways." Software provided by Icom implements the gateway-to-gateway communications protocol described in the JARL standard. This establishes a high-speed path between D-STAR systems anywhere on the Internet for both data and voice. An on-line discussion of D-STAR technology, including a slide show and history on D-STAR's development is available at www.icomamerica.com/amateur/dstar. That Web site also has links to an on-line D-STAR forum and user's group hosted by Icom America.

Radios that support D-STAR include the Icom ID-1 and ID-800 base/mobile transceivers. The new IC-V82 and IC-U82 handheld transceivers and the IC-2200H mobile transceiver, provide D-STAR connectivity with the optional UT-118 accessory module. The ID-1 supports full 128 kbps data via a bridged Ethernet connection that can be connected directly to a computer and slow-speed data via a USB port. The IC-2200H, ID-800, and the IC-V82 and IC-U82 handhelds provide a 3-wire RS-232 connection. See your authorized Icom dealer or visit our website for more information. Go digital... today!

For the love of ham radio.

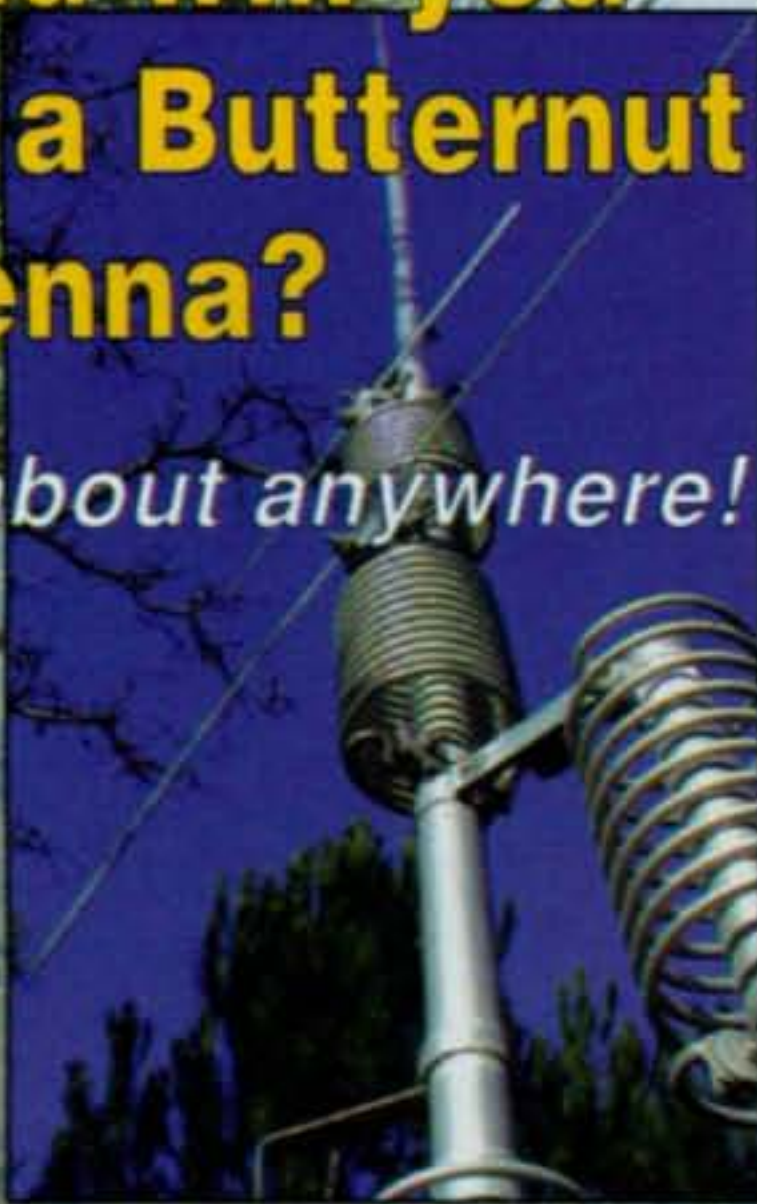
www.icomamerica.com


ICOM

©2005 Icom America Inc. The Icom logo is a registered trademark of Icom Inc. All specifications are subject to change without notice or obligation. 7437

Where in the world will you find a Butternut antenna?

Just about anywhere!



Whether it's for your main home station antenna, a DXpedition antenna, or the portable antenna you use with your mobile home, your Butternut is ready to deliver big antenna performance in an efficient, reliable, compact design. Used in over 160 countries throughout the world and on countless DXpeditions.

Every ham needs at least one!

Butternut verticals are available to cover all bands from 160 to 6 meters

Check our web site www.bencher.com for the full line of finely crafted Butternut and Bencher products.

Bencher Butternut

**832 Anita Street
Antioch, IL 60002**

Call or write for Free color brochure:

847-838-3195

Fax: 847-838-3479

nas. You also can select the transmit antenna as the receiving antenna. Gain can be selected as -20 dB, 0 dB, or +20 dB to match most HF band conditions.

The ASAP-2 uses a feedback type, stable amplifier design. It exhibits a 5-dB noise figure and +30-dBm third-order intercept point (OIP) performance. Input protection up to +20 dBm is provided. Multicolored LEDs indicate antenna selection and gain setting. The unit automatically switches to the transmit antenna when keyed by the HF transceiver key (relay) line. All connections are via SO-239 and RCA phono jacks on the rear panel (photo G). The unit requires 12 VAC or 12-15 VDC at 200 ma from the rig accessory socket or from an optional AC adapter.

Another model, the ASAP-1, is for use with receivers only. It has four low-Z (50-ohm) receive antenna inputs and a high-Z input for longwires or an indoor whip, enabling its use as an active antenna.

Both of these models enhance reception for weak-signal DX work, contesting, general rag chewing, or SWLing by giving the user the ability to shift the dynamic range window and improve the signal-to-noise (S/N) ratio. The ASAP-2 is \$149.50. The ASAP-1 is \$119.50, and the PS-1 12 VAC wall adapter is \$13.95. Both units are shipped postpaid via U.S. Priority Mail. Contact J-TEC, 6692 Liberty Street, Navarre, FL 32566 (850-936-7100; e-mail: <jaandem@yahoo.com>; on the web: <<http://www.j-tecradio.com>>).

Summer New Product Update from LDG Electronics. For years we have noted the impressive antenna accessory products from Dwayne Kincaid, WD8OYG, of LDG Electronics. Recently, Dwayne sent us information on several new products that, in his words, announce the beginning of some "really nifty gadgets coming out." We'll briefly touch on a few of them this month.

New this summer is a reincarnation of LDG's popular Z-11 tuner, the Z-11Pro (photo H), a small, portable tuner designed from the ground up for battery operation. The new tuner's power-handling capability is boosted to 100+ watts, memories have been increased substantially, a frequency counter has been added for instant recall, an internal battery pack that lasts about two years is included, and the "zero power draw" has been kept (unless transmitting or tuning). The new unit handles 0.1 to 125 watts, making it ideal for both QRP and standard 100-watt transceivers from 160 through 6 meters. List price is the same as the Z-11 (\$179).

LDG also offers a line of electronically controlled coax switches. The DTS-4 is a 1500-watt desktop switch with four positions. It has an optional remote control, the DTS-4R (photo I), that allows the DTS-4 to be placed at a remote location—under the desk, in the attic, in the trunk, etc. The DTS-4 sells for about \$79, and the DTS-4R is \$39. There is also a follow-up unit coming this summer that has six positions (DTS-6, \$99) and a remote for it (DTS-6R, \$49).

Dwayne also is proud of the new AT-200Pro, a 200-watt tuner that's said to be the best tuner that LDG has ever made. The new unit (list price \$249) is his first automatic antenna tuner designed specifically for today's newest high-power transceivers. The tuner uses LDG's new "3-D memory system," allowing up to eight antenna settings to be stored for each frequency. LED bargraphs show power and SWR, and a function key on the front panel allows the user to access data such as mode and status.

Then there is the TW-1 Talking HF SWR/wattmeter. It provides an aural spoken indication of power and SWR using a digitally recorded voice. It's said to be ideal for the vision-impaired, for those of us in the "bifocal set," or just for those times when you need to be looking somewhere else. At the press of a button the TW-1 speaks the forward power, reverse power, or SWR, in English, Spanish, or German. The TW-1 has its own internal speaker; no external audio hookups are needed. Brand-new is the TW-2, a similar Talking SWR/wattmeter for 6 and 2 meters, as well as 220 and 440 MHz. Each unit lists for \$149.

Contact LDG Electronics, 1445 Par-ran Rd., St. Leonard, MD 20685 (410-586-2177; e-mail: <ldg@ldgelectronics.com>; <<http://www.ldgelectronics.com>>). *Note:* Be sure to check out the LDG website, which offers a "time saver test" to help convince you that it's time to start using an automatic antenna tuner, and which also lets you actually "listen to" the TW-1 and TW-2 Talking SWR/wattmeters.

Software and Computers

MFJ Sound Card Extension Box. New from MFJ Enterprises is the MFJ-5420 Sound Card Extension Box (photo J), said to be great for use with MFJ-1275/1279 Sound Card Interfaces. With it, you can put your sound-card controls at your fingertips, right in front of your computer. This means no more fooling around with your PC's sound card in the

back of your computer or messing with volume controls that may be hidden in computer software.

This small, silver plastic box has an audio input jack for external audio input from your radio or from a microphone; an audio input jack on/off switch; a speaker jack for external stereo speaker hookup; a stereo headphone jack for external headphone connection; a thumbwheel volume knob for speaker/headphone volume setting; a speaker/headphone switch for selecting speaker or headphone operation; and a jack for "hands free" telephone operation. The audio input cable for connecting to the sound-card audio output is 5 feet long with a 3.5-mm stereo plug, and the audio output cable for connecting to the sound-card audio input also is 5 feet with a 3.5-mm stereo plug. The MFJ-5420, at \$12.95, is protected by MFJ's famous No Matter What™ one-year limited warranty, which means that MFJ will repair or replace (at its option) your MFJ-5420 no matter what for one complete year.

For more information or a free catalog, contact MFJ Enterprises, Inc., 300 Industrial Park Road, Starkville, MS 39759 (1-800-647-1800; e-mail: <mfj@mfjenterprises.com>; on the web: <<http://www.mfjenterprises.com>>).

Radio Resources

U.S. Catalog Featured by Down-Under Firm. Stateside radio amateurs might find it useful to order some of their electronics parts and kits from an unusual source. Jaycar Electronics of Sydney, Australia now offers its thick, 400+-page, full-color catalog with pricing in U.S. currency (fig. 1). The advantage in pricing the catalog in USD is that in doing so, you're saved the hassles of converting your dollar into Australian dollars. What you see in the catalog is what you pay.

The Jaycar catalog boasts more than 6000 products, over 740 new and innovative items, safe and secure online ordering, and very moderate postage and packing charges that include air-mail to the U.S. Jaycar also offers a toll-free number that is manned by its support staff during hours convenient to U.S. customers.

While not all of the items in the catalog will work in the U.S., most will. You also may be particularly interested in the many do-it-yourself project kits found on the pages of the catalog. In addition to electronic components and kits, the Jaycar catalog features test and measurement equipment, power

Special savings at your Icom dealer this summer!

save \$10 on these Icom handhelds*.

'T90A, 'W32A, 'T7H, 'V8, 'V82, 'V82 Sport, 'U82, 'U82 Sport, 'R3, & 'R5 ('T2H Sport, & 'R20 are excluded)

save \$20 on these Icom mobiles*.

'2200H, '2100H, '2720H, '208H, 'V8000, ID-1 & ID-800 ('703 Plus, & 'PCR1000 are excluded)

save \$25 on the 'R20*.

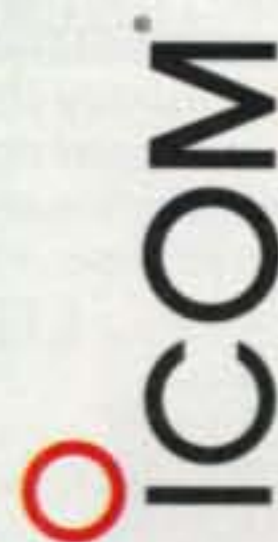
save \$50 on these other Icom rigs*.

'706MKIIG, '718, & '746PRO

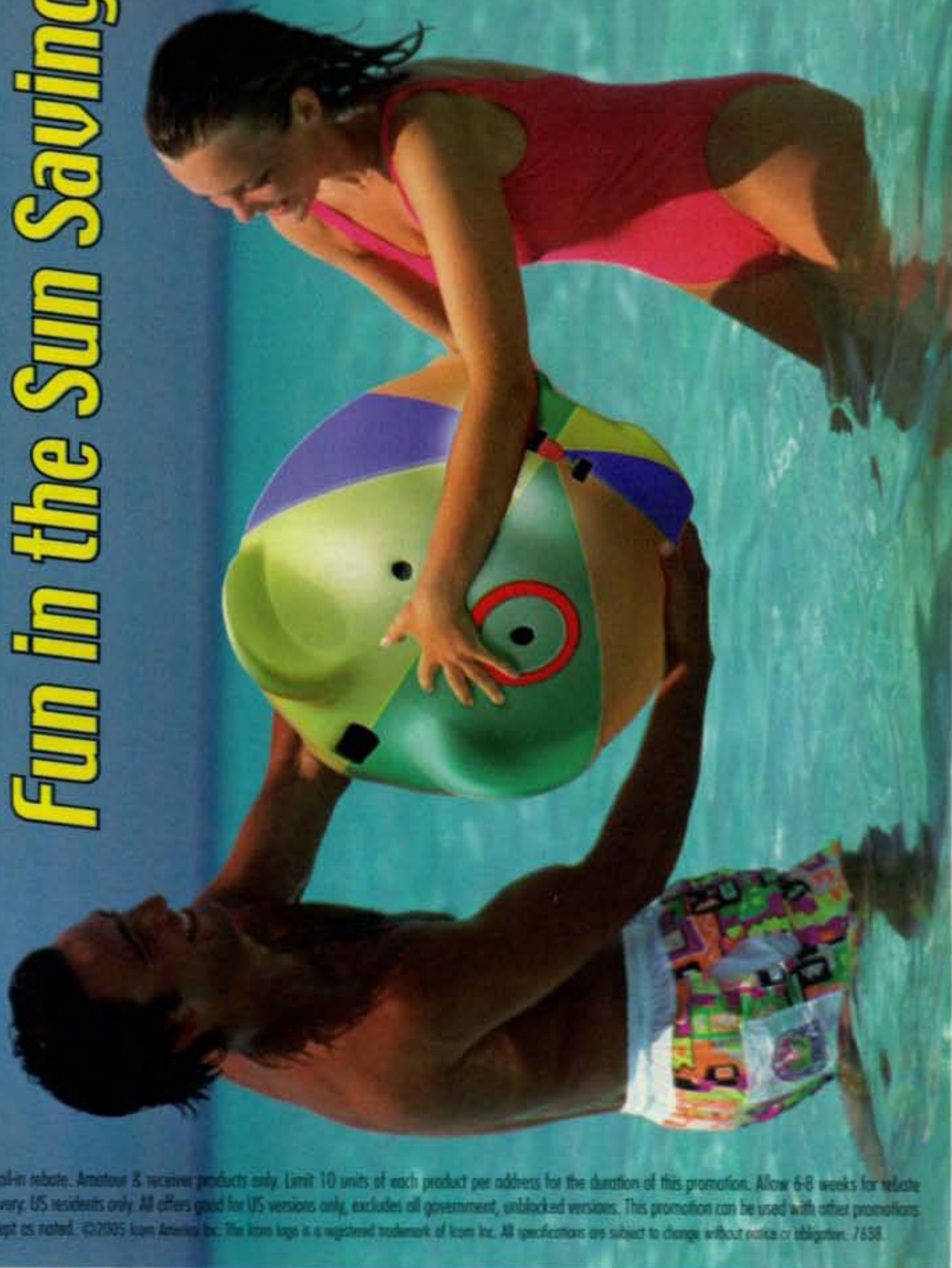
(plus get an additional \$200 instant savings on the '746PRO)

This is a limited time offer.

See your authorized Icom dealer for details.



Fun in the Sun Savings



*Mail-in rebate. Amateur & receiver products only. Limit 10 units of each product per address for the duration of this promotion. Allow 6-8 weeks for rebate delivery. US residents only. All offers good for US versions only, excludes all government, unblocked versions. This promotion can be used with other promotions except as noted. ©2005 Icom America Inc. The Icom logo is a registered trademark of Icom Inc. All specifications are subject to change without notice or obligation. 7838.

The Smallest Motorized Antennas on the Market

Get the quality that only CNC machined blueprinted components in either aircraft aluminum or stainless steel can offer. Now a smaller TARHEEL.



LITTLE TARHEEL

6-40 meter

\$349. + S/H

Specifications

Lower Mast Size- 1 1/2"

Lower Mast Length- 16"

Whip Length- 32"

Total Length of Antenna in 6mt position- 50"

Total Length of Antenna in 40mt position- 56"

Freq. Coverage Continuous- 6mt thru 40mt

Power Rating- 500 watts P.E.P.

Typical SWR- 1.5 or less

Weight- 1.8 lbs.

LITTLE TARHEEL II

6-80 meter

\$349. + S/H

Specifications

Lower Mast Size- 1 1/2"

Lower Mast Length- 16"

Whip Length- 32"

Total Length of Antenna in 6mt position- 50"

Total Length of Antenna in 80mt position- 56"

Freq. Coverage Continuous- 6mt thru 80mt

Power Rating- 200 watts P.E.P.

Typical SWR- 1.5 or less

Weight- 1.9 lbs.

TARHEEL ANTENNAS

919-552-8788 • Fax 919-552-4970

www.tarheelantennas.com

We Design And Manufacture To Meet Your Requirements

*Prototype or Production Quantities

800-522-2253

This Number May Not Save Your Life...

But it could make it a lot easier! Especially when it comes to ordering non-standard connectors.

RF/MICROWAVE CONNECTORS, CABLES AND ASSEMBLIES

- Specials our specialty. Virtually any SMA, N, TNC, HN, LC, RP, BNC, SMB, or SMC delivered in 2-4 weeks.
- Cross reference library to all major manufacturers.
- Experts in supplying "hard to get" RF connectors.
- Our adapters can satisfy virtually any combination of requirements between series.
- Extensive inventory of passive RF/Microwave components including attenuators, terminations and dividers.
- No minimum order.

NEMAL

Cable & Connectors for the Electronics Industry

NEMAL ELECTRONICS INTERNATIONAL, INC.

12240 N.E. 14th AVENUE

NORTH MIAMI, FL 33161

TEL: 305-899-0900 • FAX: 305-895-8178

E-MAIL: INFO@NEMAL.COM

BRASIL: (011) 5535-2368

URL: WWW.NEMAL.COM

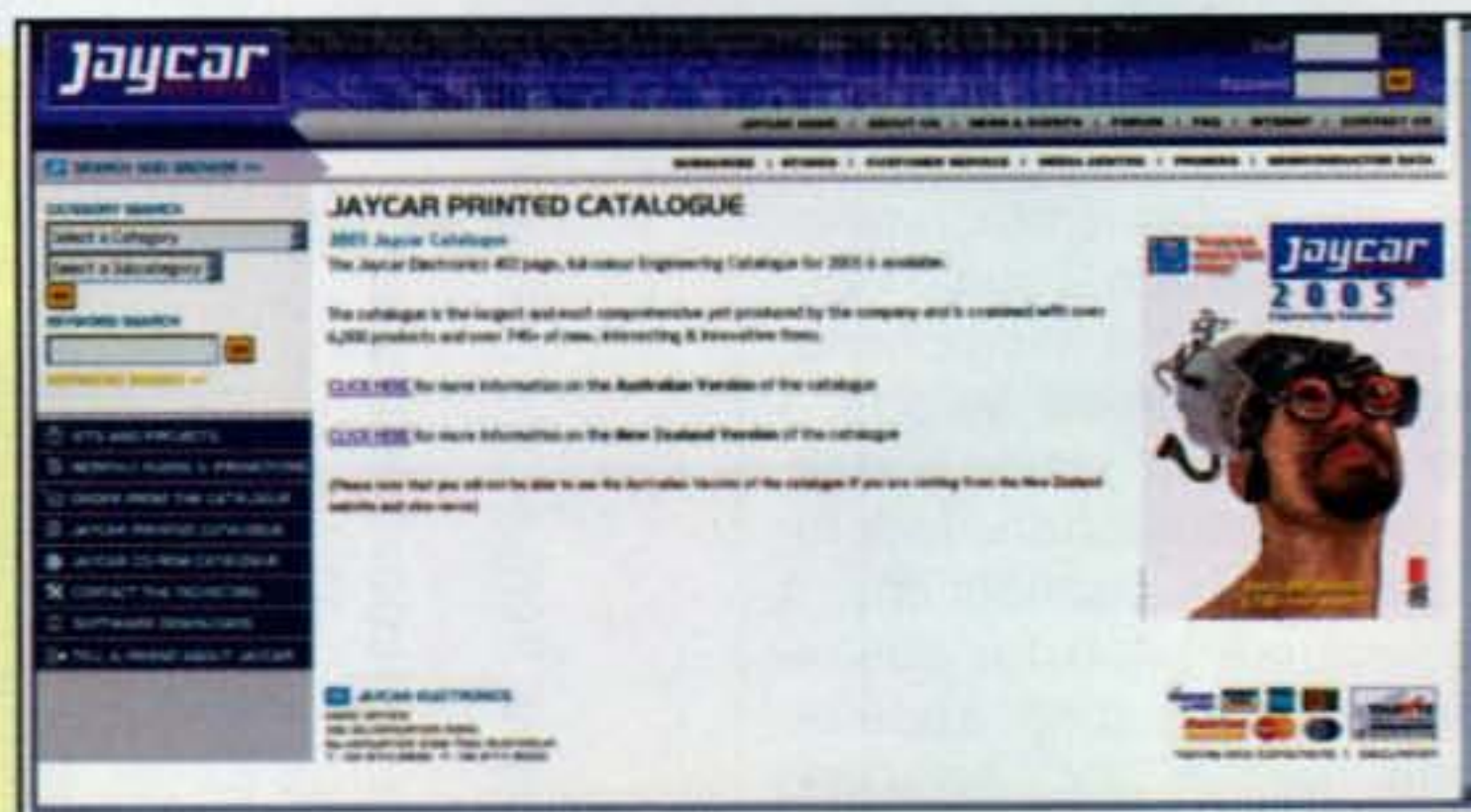


Fig. 1- Jaycar Electronics of Silverwater, Australia now offers its catalog with pricing in U.S. currency and a toll-free number for ordering. The page shown here is for Australia and New Zealand customers; the easiest way to request an international Jaycar catalog is to log on to <http://www.jaycarelectronics.com/catalog>. (Screen capture from the Jaycar Electronics website)

products and accessories, audio and video equipment and accessories, computer and telecom accessories, security and surveillance equipment, and much more.

Contact Jaycar Electronics, 100 Silverwater Road, Silverwater 2128 NSW, Australia (1-800-784-0263; e-mail: techstore@jaycar.com.au or kits@jaycar.com.au; on the web: <http://www.jaycarelectronics.com>).

Note: The easiest way to request a

catalog is to log on the firm's website at <http://www.jaycarelectronics.com/catalog>.

Wrap-Up

That's all for this time, gang. Next time more "What's New." See you then.

Overheard: Over the years I've found that those highly annoying, everyday disappointments really don't herald "the end of the world." 73, Karl, W8FX

Note: Listings in "What's New" are not product reviews and do not constitute a product endorsement by CQ or the column editor. Information in this column is primarily provided by manufacturers/vendors and has not necessarily been independently verified. The purpose of this column is to inform readers about new products in the marketplace. We encourage you to do additional research on products of interest to you.

Oops...

Last month's announcement of the 2005 inductees into the CQ Amateur Radio Hall of Fame included a typo on one name. Ham Radio Outlet President W6RJ's name is properly spelled Bob Ferrero.

Also, despite what we said on last month's cover, the CQ WPX RTTY Contest results in that issue were for the 2005 event, not 2004 (it was correct inside). We apologize for the errors.

Looking Ahead in CQ

Here's a look at articles we're working on for upcoming issues of CQ:

- CW Results, 2004 CQ World-Wide DX Contest
- Rules, 2005 CQ World-Wide DX Contest
- "HF Transceiver Calibration Without Instruments," by WA0SPM
- "Sleuthing the Neutral Zones," by W4YO

Do you have a ham radio story to tell? See our writers' guidelines on the CQ website at <http://www.cq-amateur-radio.com/guide.html>

MFJ Speech Intelligibility Enhancer

... makes barely understandable speech highly understandable!



"What did you say?" Can you hear but ... just can't always understand everything people are saying?

As we get older, high frequency hearing loss reduces our ability to understand speech. Here's why ...

Research shows that nearly half the speech intelligibility is contained in 1000 to 4000 Hz range, but contains a miniscule 4% of total speech energy.

On the other hand, the low frequencies, 125 to 500 Hz have most of the speech energy (55%) but contribute very little to intelligibility -- only 4%.

To dramatically improve your ability

to understand speech, you must:

First, drastically increase the speech energy above 500 Hz, where 83% of the speech intelligibility is concentrated.

Second, drastically reduce speech energy below 500 Hz where only 4% of speech intelligibility lies.

The MFJ-616 splits the audio speech band into four overlapping octave ranges centered at 300, 600, 1200 and 2400 Hz. You can boost or cut each range by nearly 20 dB.

A balance control and separate 2 1/2 Watt amplifiers let you equalize perceived loudness to each ear so both ears help.

By boosting high and cutting low frequencies and adjusting the balanced control, speech that you can barely understand become highly understandable!

Even if you *don't* have high frequency hearing loss, you'll dramatically improve your ability to understand speech. You'll get an edge in contesting and DXing and enjoy ragchewing more.

Here's what QST for April, 2001 said ... "I expected a subtle effect at best, but I was astonished ... The result was remarkably clean, understandable speech without hissing, ringing or other strange effects ... made a dramatic improvement ..."

Immuned to RFI. Has phone jack, on/off speaker switch, 2 inputs, bypass switch. 10Wx2 1/2 Hx6 D". Needs 12 VDC.

MFJ-1316, \$19.95. For 110 VAC operation. Provides 12 VDC/1.5 Amps.

MFJ-72, \$58.80. All-in-one MFJ-616 Accessory Pack. Includes MFJ-392 headphones, two MFJ-281 speakers and MFJ-1316 power supply. **Save \$7!**

Try it for 30 Days

Order from MFJ and try it -- No obligation. If not delighted, return it within 30 days for refund less shipping.

MFJ Contest Voice Keyer

Transformer-coupled -- No RFI, hum or feedback ... 75 seconds total, 5-messages ... Records received audio ...



Let this new microprocessor controlled MFJ Contest Voice Keyer™ call CQ, send your call and do contest exchanges for you in your own natural voice!

Store frequently used phrases like "CQ Contest this is AA5MT", "You're 59" ... "Qth is Mississippi" ... Contest by pressing a few buttons and save your voice.

Record and play back five natural sounding messages in a total of 75 seconds. Uses *eprom* -- no battery backup needed.

You can repeat messages continuously and vary the repeat delay from 3 to 500 seconds. Makes a great voice beacon and calling CQ is so easy.

You can also record and play back off-the-air signals -- great help if you didn't get it right the first time! No more "Please repeat".

A playing message can be

halted by the MFJ-434 Stop Button, your microphone's PTT/VOX, remote control or computer.

Has jack for remote or computer control (using CT, NA or other program). Lets you select, play and cancel messages.

Your mic's audio characteristics do not change when your MFJ-434 is installed.

All audio lines are RF filtered to eliminate RFI, audio feedback and distortion. An audio isolation transformer totally eliminates hum and distortion caused by ground loops.

It's easy to use -- just plug in your 8 pin mic and plug the MFJ-434 cable into your transceiver. Internal jumpers let you set it to your rig. Use your mic or its built-in mic for recording.

Built-in speaker-amplifier. Speaker/phone jack. Use 9 Volt battery, 9-15 VDC or 110 VAC with optional MFJ-1312D, \$14.95. 6 1/2 Wx2 1/2 Hx6 1/4 D in.

MFJ-73, \$29.95. MFJ-434 Remote Control with cable.

60 dB Null wipes out noise and interference



Wipe out noise and interference before it gets into your receiver with a 60 dB null!

Eliminate all types of noise -- severe power line noise from arcing transformers and insulators, fluorescent lamps, light dimmers, touch controlled lamps, computers, TV birdies, lightning crashes from distant thunderstorms, electric drills, motors, industrial processes ...

It's more effective than a noise blanker! Interference much stronger than your desired signal can be completely removed without affecting your signal.

It works on *all* modes -- SSB, AM, CW, FM -- and frequencies from BCB to lower VHF.

You can null out strong QRM on top of weak rare DX and then work him! You can null

out a strong local ham or AM broadcast station to prevent your receiver from overloading.

Use the MFJ-1026 as an adjustable phasing network. You can combine two antennas to give you various directional patterns. Null out a strong interfering signal or peak a weak signal at a push of a button.

Easy-to-use! Plugs between transmitting antenna and transceiver. To null, adjust amplitude and phase controls for minimum S-meter reading or lowest noise. To peak, push reverse button. Use built-in active antenna or an external one. MFJ's exclusive *Constant Amplitude Phase Control™* makes nulling easy.

RF sense T/R switch automatically bypasses your transceiver when you transmit. Adjustable delay time. Uses 12 VDC or 110 VAC with MFJ-1312D, \$14.95. 6 1/2 Wx2 1/2 Hx6 1/4 in.

MFJ-1025, \$159.95. Like MFJ-1026 less built-in active antenna, use external noise antenna.

MFJ tunable Super DSP filter

Only MFJ gives you *tunable* and *programmable* "brick wall" DSP filters.

You can continuously *tune* low pass, high pass, notch and bandpass filters and continuously *vary* bandwidth to pinpoint and eliminate interference.

Only MFJ gives you 5 factory pre-set and 10 programmable pre-set filters you

MFJ-784B
\$249⁹⁵



can customize. **Automatic** notch filter searches for and eliminates multiple heterodynes. Advanced adaptive noise reduction silences background noise and QRM.

Free MFJ Catalog

Visit: <http://www.mfjenterprises.com> or call toll-free 800-647-1800

• 1 Year No Matter What™ warranty • 30 day money back guarantee (less s/h) on orders direct from MFJ

MFJ MFJ ENTERPRISES, INC.
300 Industrial Pk Rd, Starkville,
MS 39759 PH: (662) 323-5869
Tech Help: (662) 323-0549

FAX: (662) 323-6551 8-4:30 CST, Mon.-Fri. Add shipping. Prices and specifications subject to change. (c) 2002 MFJ Enterprises, Inc.

<http://www.mfjenterprises.com> for instruction manuals, catalog, info

60 Great Things About Ham Radio



In celebration of CQ's 60th anniversary in 2005, we've come up with 60 great things about ham radio which we'll bring you each month, five at a time. We're sure you'll have more great things that we haven't thought of, so when we're all done, we'd love to compare our list with yours.—W2VU

This month, we'll focus on DXing and contesting...

36. Working DX—This is what makes ham radio unique and, for many of us, is the central attraction of amateur radio. Our ability to talk directly with other people from other cultures and other countries—even countries with which our government doesn't get along—helps break down stereotypes and enhance international goodwill.

37. Being DX—This is an everyday experience for those of us who live in places that are "rare" among hams, and recent relaxations in reciprocal operating rules are making it easier for hams on vacation to operate at least briefly from places that they're visiting and enjoy the feeling of "being DX."

38. DXpeditions—These organized trips to activate rare locations keep things exciting for DXers and give participants

a chance to "be the DX" and be on the receiving end of world-wide popularity and pile-ups.

39. Contesting—This is a sport that requires more mental than physical agility and allows those of us with a competitive spirit, regardless of physical abilities, to "go for the gold." In addition, contests bring many rare locations on the air, providing excellent DXing opportunities even for the non-competitors among us. CQ sponsors a half dozen annual contests, including the two most popular, the CQ WPX Contest and CQ World-Wide DX Contest (see 2004 SSB results in this issue).

40. Award chasing—The Europeans call operating awards "diplomas" and the name is fitting. They indicate that you've achieved a certain level of accomplishment in DXing, contesting, or other ham radio activity. CQ's awards program offers recognition for all levels of achievement, from the new CQ iDX Award for beginners to the incredibly challenging 5-Band Worked All Zones and USA-CA All Counties awards.

We'll be back next month with another installment...

COMING THIS SUMMER from the publisher of *CQ Amateur Radio* **MIL SPEC RADIO GEAR**

KOREAN WAR TO PRESENT DAY

by MARK FRANCIS, KIØPF

- Detailed write-ups for many familiar sets: PRC-25/-77, PRC-10, PRC-74, PRC-41, RT-6B, PRC-1099, GRC-106, GRC-9, GRC-109, GRR-5, R-392, and more
- Over 230 pages of operation, modification, and maintenance tips and info, including 200+ illustrations
- HF Manpack, HF Mobile, HF Fixed, VHF Manpack, VHF Mobile, UHF Manpack
- Ancillary equipment: Hand-crank generators, GRA-71 code burst adapter, audio accessories, and more
- Many useful hints and mods gathered from the author's personal experience you won't find in the tech manuals. A few examples:
 - ☛ Definitive cure for the PRC-1099 synthesizer FMing problem
 - ☛ How to turn the power down on your GRC-106 so you don't fry it
 - ☛ A simple way to adjust the transmit deviation on the FM GRC gear
 - ☛ Align a BC-611 handy-talkie without the special fixture
 - ☛ Get around the stuck-coil-slug problem in your TRC-77
 - ☛ Put your PRC-74B or 74C on 17 meters (and other useful PRC-74 mods)
- The HFpack Phenomenon – low-power HF portable operation
- Special section on simple, effective field expedient HF wire antennas
- How to find surplus; maintenance and troubleshooting



Pre-Publication
Price
ONLY \$23.95
Free U.S. S&H

CQ Communications, Inc.

25 Newbridge Road, Hicksville, New York 11801 • Phone: (516) 681-2922 • Fax: (516) 681-2926



3500 Watt Antenna Tuner

PALSTAR'S NEW TOP GUN

The AT5K is the latest antenna tuner from American amateur radio manufacturer Palstar carrying on in the tradition for high quality products designed by Hams for Hams. The American made AT5K is a one of a kind unique dual function high power 3500 watt antenna tuner.

The typical unbalanced tuner with a 4:1 balun at the output exposes the balun to a wide range of reactances that it was never designed to handle. The AT5K takes power handling to the next level with a rating at 3500 watts single tone continuous performance. Inside the AT5K you'll find massive custom large plate variable capacitors as well as cross-needle metering with both active peak and peak hold.

Specifications: • 3500 watts single tone continuous high efficiency, low tuner losses and wide Z range • 160m to 15m with limited Z range on 10m • balanced output with high power 5 kW ferrite balun at input • custom large plate (600pf) variable capacitors at 6kV • 10 Amp 7kV ceramic 3.25" body roller inductor (35 uH) wound with #10ga plated solid copper wire • silver plated wheel shaft, contact wheel and hardware • six-position switchable antenna input switch with 7 kV, 10 Amp contacts • cross-needle active peak and peak hold metering with backlighting (wall transformer supplied) • chassis and top cover are .090 ga. aluminium iridite with powder coat finish • fan cooling for 100% duty cycle operation • dimensions 16"x8"x18" • 25 lbs



ZM30 Antenna Analyzer



AT1500CV 1500 Watt Antenna Tuner



DL2K 2000W Dummy Load

"For Hams who demand the best!"

WWW.PALSTAR.COM

1-800-773-7931





What You've Told Us...

Our May survey asked for your views on the frequency and accessibility of amateur radio licensing courses and exam sessions in your area. Overall, courses and exam sessions are pretty widely available, with 69% of you reporting that Technician courses are offered at least once a year in your area, and 51% report that courses for higher license levels are also available. In addition, 70% of you say there are exam sessions in your area at least four times per year (40% report test sessions are available at least once a month).

Responding to the question of how far you considered it reasonable to travel to reach a licensing course or test session, 13% answered less than 10 miles, 45% said 10-25 miles was reasonable, and 30% are willing to go 25-50 miles, but only 9% think it's reasonable to travel 50 miles or farther. Most of you (58%) also report that both courses and test sessions are available within your "reasonable range," with another 21% saying that only exam sessions are available within that range. Only 1% report availability of a course but no test session, and 4% say neither one is offered within a reasonable distance.

The majority of you (62%) are at least somewhat satisfied with the general availability of licensing courses in your area (40% very satisfied, 22% somewhat satisfied), while 22% are neither satisfied nor dissatisfied and 14% are somewhat (9%) or very (5%) dissatisfied. On the same question regarding availability of test sessions, 70% of you are at least somewhat satisfied (57% very, 13% somewhat), 18% are neither satisfied nor dissatisfied and 9% are somewhat (6%) or very (3%) dissatisfied.

The winner of this month's free *CQ* subscription is Dean Sever, W8IM, of Leesburg, Florida.

Reader Survey August 2005

We'd like to know more about you—about who you are, where you live, what kind(s) of work you do, and of course, what kinds of amateur radio activities you enjoy. Why? To help us serve you better.

Each time we run one of these surveys, we'll ask a few different questions and ask you to indicate your answers by circling numbers on the Survey Card and returning it to us. As a bit of an incentive, we'll pick one respondent each month and give that person a complimentary one-year subscription (or subscription extension) to *CQ*.

This month, we'd like to ask you about hamfests.

Please answer by circling the appropriate numbers on the reply card.

1. Have you ever gone to a hamfest?

- Yes 30
No 31

2. When did you attend your most recent hamfest?

- Within the past month 32
Within the past six months 33
Within the past year 34
One to three years ago 35
Three to five years ago 36
More than five years ago 37
Never 38

3. What is your main reason for going to a hamfest?

- To buy something you've already decided on 39
To buy something after looking at options and making a final decision 40
To see what's available and learn about new gear 41
To shop for bargains in the flea market 42
To sell new equipment, etc. with/as a vendor 43
To sell used equipment, etc., in the flea market 44
To attend forums 45
To socialize with other hams 46
To eat hamfest food 47
Other 48
Do not attend hamfests 49

4. How frequently do you attend hamfests now, compared with five years ago?

- More frequently 50
About the same 51
Less frequently 52

5. If you attend hamfests less frequently now than in the past, what is the main reason?

- Fewer hamfests in my area 53
Less good stuff in the flea market 54
Fewer dealers selling new gear 55
Better deals available online or by phone 56
Less time / more obligations 57
Less interest 58
Age/mobility-related problems 59
Other 60

6. If you have ideas for improving hamfests and attracting more people to them, we invite you to jot them down on a separate piece of paper and submit them along with your survey card.

Thank you very much for your replies. We'll be back next month with more questions.

Alinco delivers more operating fun for less.

Dual Band Dynamos for your pocket or your car!

DR-635T 2M/440MHz Mobile/Base Transceiver

Dual Band Transceiver with Full Duplex Capability

Alinco's new DR-635T is an easy-to-use, high-quality transceiver for simplex and repeater operations on the VHF and UHF bands. With cross-band repeat, full duplex capability and a remote mountable control head, the DR-635T features newly designed RF circuitry that delivers increased resistance to interference from adjacent signals. Plus, a new protection circuit automatically lowers the power setting whenever the internal temperature rises. This protects the radio when used as a cross-band repeater. But, that's just the beginning:



- Large, 6 character alphanumeric display with freely and separately selectable three color display illumination in blue, violet or orange for TX/RX/stand-by
- TCXO that is stable to ± 2.5 ppm
- Narrow FM mode
- Power supply voltage display
- Ignition key on/off feature & theft alarm feature
- CTCSS, DCS encode/decode and DTMF encode functions plus European Tone Bursts
- Multiple scan modes and extended receive capabilities including broadcast FM
- Backlit DTMF microphone allows direct frequency entry and more
- VHF: 50/20/5, UHF: 35/20/5 watt power output settings
- 200 Memory channels that can operate in splits of 80ch/VHF, 80ch/UHF and 40ch freely programmable with 1 call channel each for VHF and UHF operation
- Extended receive from 108.000 ~ 173.995MHz / 335.000 ~ 479.995MHz / 87.5 ~ 107.995MHz, transmits from 144.000 ~ 147.995MHz / 430.000 ~ 449.995MHz, plus reception on AM aircraft band and the ability to operate on MARS frequencies
- Can also operate with Alinco's optional EJ-50U digital data packet board that fits inside or the EJ-47U digital voice board

DJ-C7T 2M/440MHz "Pocket-size" HT

Hams are packing some serious radio power in their pockets with the DJ-C7T, the new dual band mini HT. Alinco led the way in breakthrough miniature electronics technology with its revolutionary "credit card" size transceivers. Now, the DJ-C7T offers a "pocket size" HT that's small in size but BIG in added memories and modes.

Check out the features of this "new generation" DJ-C7T

- Internal speaker with great audio!
- 200 Memories
- VFO, Memory and Scan modes
- 39 CTCSS tone squelch (encode+decode) settings
- Split function
- SMA antenna port
- As thin as 0.57in. and just 3.59 oz. total weight with antenna and battery
- Cloning feature
- Lithium-ion battery
- Wide-band receive; includes FM broadcast and AM aircraft bands
- Auto repeater setting

The DJ-C7T can fit in a pocket or purse, but it's a versatile dual band HT with an enhanced receiver. So, you can enjoy twice the operating fun in half the size.



Thanks to
Alinco,
you can
have a
dual band
dynamo
in your
pocket
AND in
your car!

www.**ALINCO**.com

Distributed in North America by Ham Distribution, Inc., 15 South Trade Center Pkwy, #B5, Conroe, Texas, 77385. Phone: 936-271-3366. Fax: 936-271-3398. email: USRep@Alinco.com.

Check regulations before operating in crossband mode. Products intended for properly licensed operators. Permits required for MARS use. CAP use subject to equipment approval.

Specifications subject to change without notice or obligation. Performance specifications only apply to amateur bands. NOTICE: Effective 5/1/2004, ALL warranty claims and requests for repair/technical assistance for Alinco products should be sent to Ham Distribution, Inc. regardless of contact information found on the warranty certificate packed with the product.

Optical Communications Revisited—Part III

Now that the transmitter and receiver are operational it is time to choose the final optical elements and build the optical "antenna." Keep in mind that although the carrier is light it is still electromagnetic energy (in the THz region), and many of the factors one encounters with lower frequency antennas still apply, as we shall soon see.

With regard to transmitting LEDs, the best results will be obtained with the highest output devices you can find. These are usually ones in the invisible (to humans) IR region, but there is no reason why an ultra-bright visible LED cannot be used in many applications. There are two primary requirements, however.

The first is the LED must have a speed of response that is adequate to pass a 75-kHz square wave with minimal degradation. The second is the maximum allowable forward current of the LED must be equal to or less than 100 ma unless you have a power transistor in the driver stage of the transmitter. If you consult the Mouser Electronics (www.mouser.com) or DigiKey (www.digikey.com) catalogs, you will find a number of suitable choices. Look for LEDs with an optical output of more than 5000 mcd (a measurement of the light output from the diode) and a rise/fall time speed of 1 microsecond or faster. If you check the links to the various potential manufacturer's websites (from these vendors), all of this data should be available. Although in principle the exact wavelength is not too critical, it should fall into the 400- to 1000-nm region for best results with a silicon photodiode. Also note that the area from 400 through 700 nm is in the visible range, with 400 nm being at the blue end of the spectrum and 700 nm at the red end. Wavelengths above 700 nm are in the infra-red region and are invisible (for the most part) to human beings. Since silicon photodiodes are most sensitive in the 800- to 900-nm region, for best results you should try to find as high an output LED in this area as you can.

Once you have chosen a suitable LED, connect it to the transmitter. Also connect an oscilloscope between the test point (10-ohm resistor) and ground. Every 0.1 volt measured on the scope will be equal to 10 milliamperes of LED current. If the LED is rated at a maximum *average* current of 20 ma (a typical value), the peak signal on the scope should not exceed 0.4 volts. Although this signifies 40 ma, remember that the LED is operating at a 50% duty cycle (approximately), so the *average* current will still only be 20 ma. You can adjust the

*c/o CQ magazine

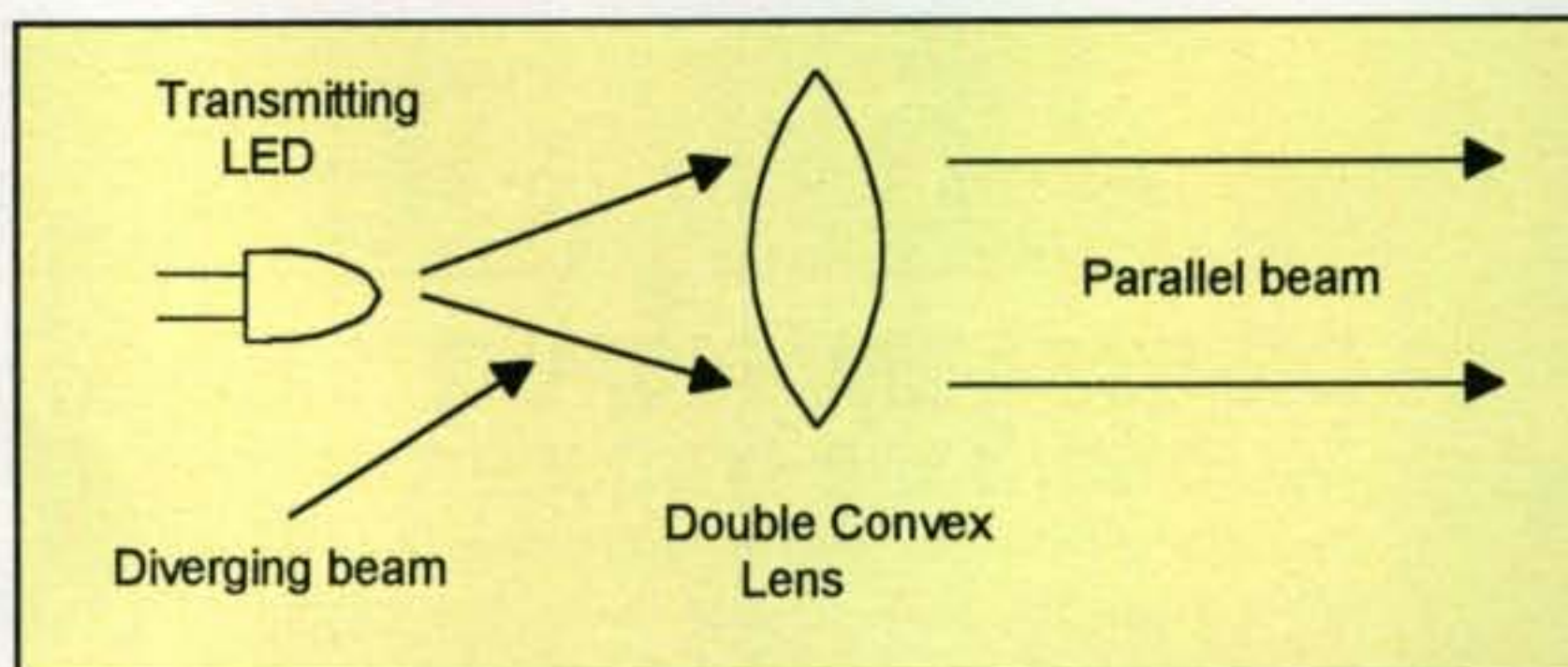


Fig. 1—Method of converting LED output to a parallel beam.

actual current by varying the value of the 100-ohm resistor. Raise it to lower the current and drop it to raise the current. Exceeding the maximum current can damage the LED, so do so at your own risk. You may also have to heat sink the driver transistor if you plan to use an LED or combination of LEDs that require significant operating current.

The light that emanates from an LED usually traverses an angle in the neighborhood of 20 degrees or so. This means that the available power delivered by the LED to a distant receiver drops off rather quickly as the transmission distance increases. Fig. 1 shows a simple way that can be used to produce a more parallel beam. This is nothing more than a simple double convex lens (such as that found in many inexpensive "magnifying lenses") placed about one focal length (of the lens) in front of the LED. You can determine the best position for the lens by experimenting with a visible LED aimed at a screen several feet away. Once the correct position is found, replace the LED with the one you plan to use and "touch up" the alignment. You can also mount the LED/lens assembly in a couple of lengths of telescoping PVC pipe obtained from the local home-improvement center for ease in focusing, mechanical stability, and overall appearance in a manner similar to that shown in fig. 2. In reality, such an assembly is a simple "optical transmitting beam antenna" and can be mounted with common pipe straps designed to support such tubing.

Although the antenna shown in fig. 2 is obviously fairly directional, the output beam will still diverge. The longer the focal length of the lens, however, the less divergence there will be and the more parallel the output beam. There is a practical limitation to this approach, though. Since the light from the LED diverges before it actually reaches the lens, the diameter of the lens must increase as the LED/lens distance increases so that it is able to "capture" all of the light coming from the LED.

Other possible arrangements that may give better results are shown in fig. 3. The simple two-lens

telescope arrangement can achieve an even greater parallel beam with reasonable-size lenses, while the inexpensive concave reflector fabricated from a cheap shaving mirror is another possible alternate (an optical parabolic antenna?). It is also possible to use an array of LEDs. If you do so, you will have to calculate the correct series/parallel combination to interface with your driver.

A representative circuit for this type of an approach is shown in fig. 4. In this example 16 LEDs are arranged in four series groups that are then connected in parallel. Assuming a 2-volt drop in each LED, the 100-ohm resistors will allow 40 ma (peak) to flow through in each group. The driver transistor will have to switch 160 ma, so a larger device (such as a 2N3053) and a heat sink will be necessary. Whatever method you choose, however, the final objective is to get as much light in a parallel forward beam as possible. As an alternative, an array of LEDs could be arranged to produce an omni-directional pattern as well.

You will note that we have not mentioned lasers up to this point, but they are also excellent candidates for an optical light source. There is some potential danger with these devices, so if you do plan to use a laser be certain to observe the most fundamental rule:

Never look directly at the beam or a reflection of the beam of light coming from a laser. Permanent eye damage can occur!

If you do use a laser, be sure to vary the value of the 100-ohm dropping resistor to assure that the maximum rated forward current of the device is not exceeded. You may even have to increase the value of the resistor beyond 100 ohms, since many solid-state laser diodes only require 10 to 30 ma. If you have a laser with an integral photodiode, you do not have to use the photodiode for the transmitter described here. The photodiode is normally used in an

optical feedback path to stabilize the laser output (over temperature and voltage fluctuations) when used to produce a continuous beam. Since the laser is turned on and off in this application, the photodiode can usually be ignored and the laser connected in the same way as the LED. Keep in mind that the same optical beam shaping methods with lenses or mirrors described for the LED can also be used for the laser.

The receiving end of the link will require a silicon photodiode with as large a sensitive area as possible. Some possibilities are the Infineon SFH250IN or the Photonic Detector PDB-C113, both of which are available from Digikey. However, before you go out and buy something expensive, try being creative by attempting to use a small silicon solar cell or even a surplus IR detector. The only real requirements are decent sensitivity at the wavelength of the transmitter (which occurs with almost any silicon diode) and a speed of response that is at least 1 microsecond or faster to pass the 75-kHz modulation.

When fabricating an optical receiving antenna, a similar lens (to the one used in the transmitter) can be used to focus incoming light directly onto the sensitive area of the detector, as shown in fig. 3. Here the larger the diameter of the lens, the more light that will be collected and the greater the sensitivity of the entire system. Again, as with the transmitter, you can mount the lens and photodiode in suitable lengths of telescoping PVC tubing. You can even experiment with the schemes of fig. 3 by interchanging the LED with the photodiode, or try an inexpensive telescope with the photodiode mounted at the focal point of the eyepiece. At lower frequencies, amateurs are not afraid to fabricate antennas that are physically large. Thus, if your efforts in the THz region become serious enough, you might consider the use of very large lenses. The so-called Fresnel magnifiers that are available in sizes of 8 x 10 inches or more (on occa-

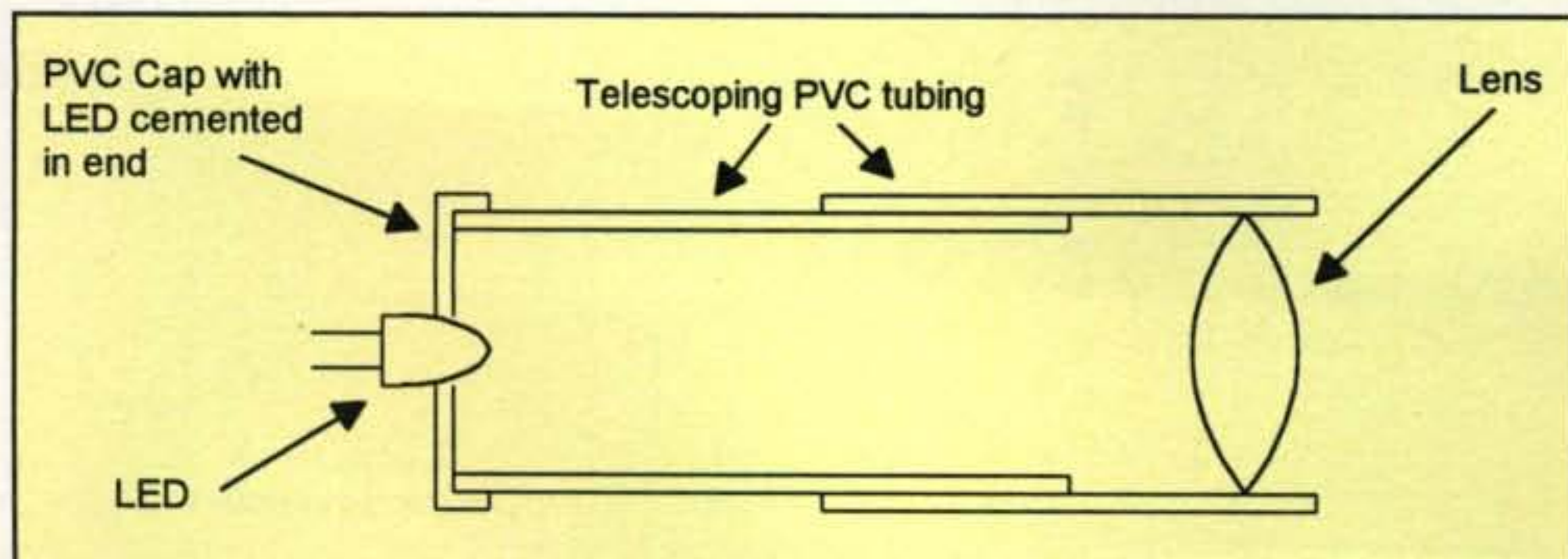


Fig. 2—A simple optical transmitting "antenna."

from MILLIWATTS to KILOWATTS™

More Watts™ per Dollar




















- **Wattmeters**
- **Transformers**
- **TMOS & GASFETS**
- **RF Power Transistors**
- **Electrolytic Capacitors**
- **Doorknob Capacitors**
- **Variable Capacitors**
- **RF Power Modules**
- **Tubes & Sockets**
- **HV Rectifiers**

ORDERS ONLY:
800-RF-PARTS • 800-737-2787

Se Habla Español • We Export

TECH HELP / ORDER / INFO: 760-744-0700

FAX: 760-744-1943 or 888-744-1943

An Address to Remember:
www.rfparts.com

E-mail:
rfp@rfparts.com







RF PARTS™

COMPANY

sion we have even seen some that are as large as 3 x 4 feet) are distinct possibilities, as are parabolic reflectors fabricated from defective parabolic-type heaters. Even arrays of tiny mirrors cemented to a large parabolic base, such as an old satellite antenna or a garbage can cover, of the appropriate dimensions can work. As it is with the lower frequencies, anything goes if it works properly.

Once you have your antenna array configured, it is then time to begin the fun part. Using point-to-point communications will probably require that you pre-arrange contacts in the same manner as experimenters in the microwave region often do. I personally have heard of contacts made as far as 20 to 30 miles over a line-of-sight path. While this requires careful aiming, in many cases it is really not much different than trying to align a GHz microwave link. Although skip via the ionosphere is not a mode of propagation at THz frequencies (as far as we know), bouncing signals off clouds, buildings, or other structures appropriately located along the path you wish to traverse is an interesting analogous approach. However, don't aim light beams at airplanes! Arrays of

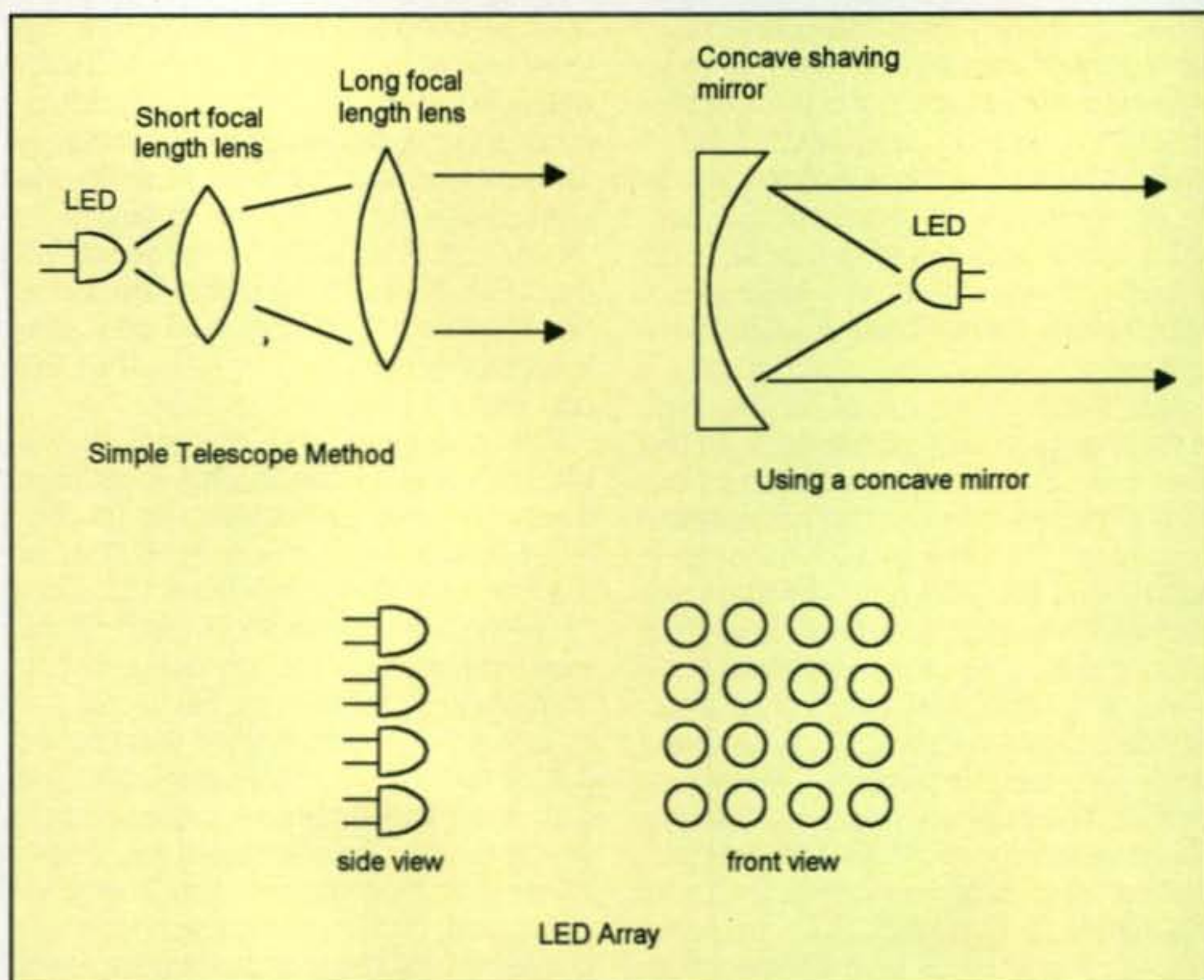


Fig. 3— Several possible methods of configuring transmitting antennas.

LEDs should also be considered for omnidirectional applications, as we have already mentioned, and they can be as large as the driver circuitry will accommodate or the budget will allow.

In short, this area is wide open to experimentation, so don't be afraid to

get immersed in it. Please let us know of your successes as well as failures. Sometimes what we learn by failing is the seed for future success.

Good luck, and most of all don't forget to have fun!!

73, Irwin, WA2NDM

The ULTIMATE FCC LICENSE UPGRADE!

GET YOUR FCC COMMERCIAL LICENSE!

No costly school. No commuting to class.

The Original Home-Study course prepares you to be an "FCC Commercial Licensed Technician" at home in your spare time!

You don't need a college degree to qualify, but you do need an FCC License. No need to quit your job or go to school. This proven course is easy, fast and low cost!

This valuable license is your "ticket" to thousands of exciting jobs in:

- Communications • Radio-TV • Avionics
- Broadcasting • Maritime • Radar
- and more...even start your own business!

GUARANTEED TO PASS - You get your FCC License or your money refunded.

Get your **FREE** facts now!

800-932-4268 Ext. 106

or go online at

www.LicenseTraining.com

COMMAND PRODUCTIONS • FCC License Training
P.O. Box 3000 • Sausalito, CA 94966-3000

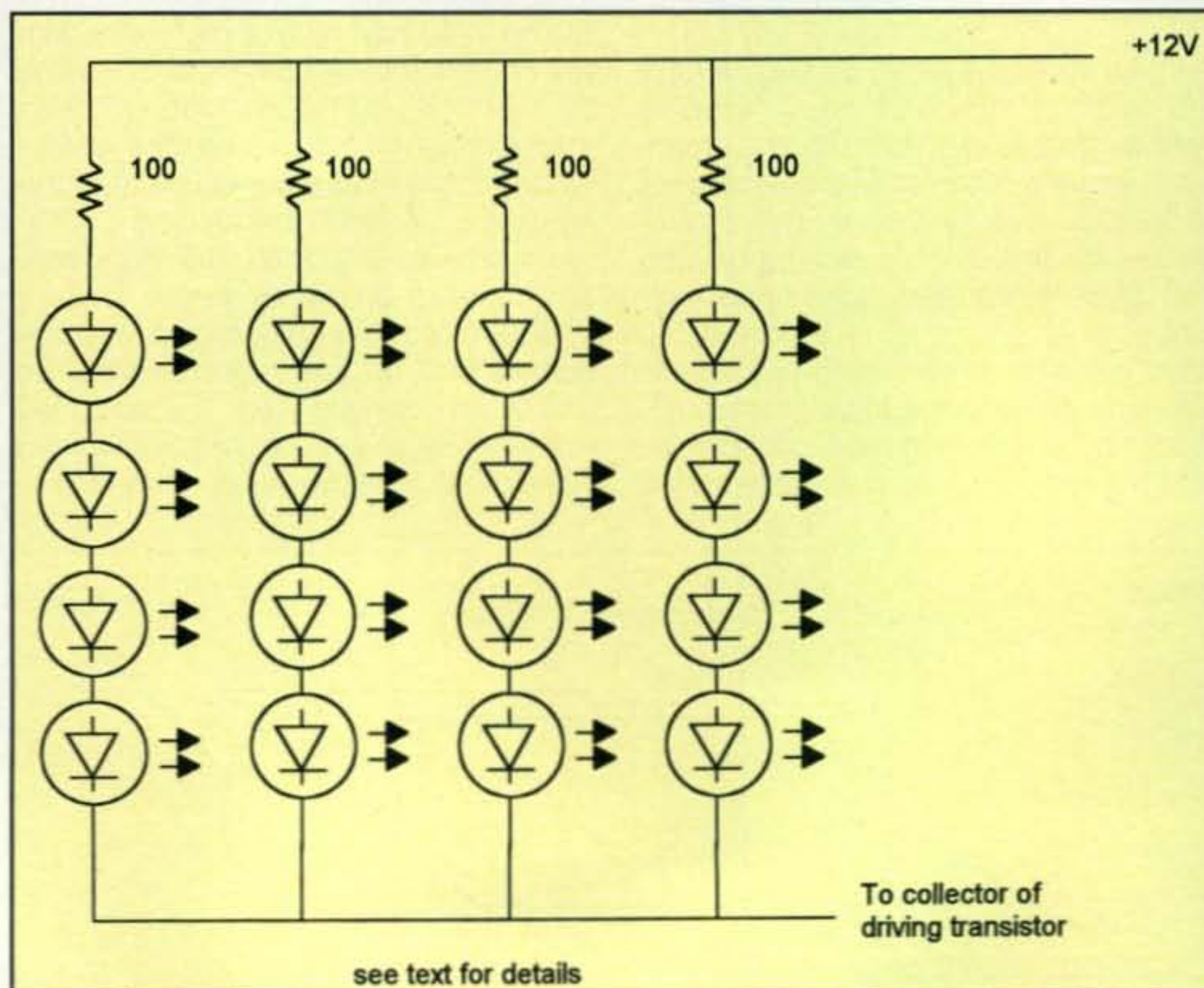


Fig. 4— Series/parallel arrangement for an LED array.

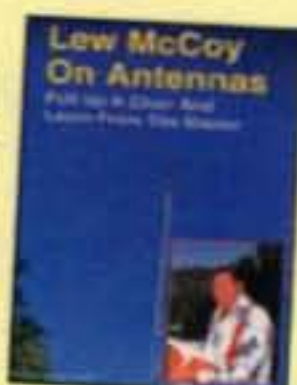
books calendars cds videos

McCoy on Antennas

by Lew McCoy, W1ICP

Unlike many technical publications, Lew presents his invaluable antenna information in a casual, non-intimidating way for anyone!

Order No. MCCOY **\$15.95**



VHF Propagation A Guide For Radio Amateurs

by Ken Neubeck, WB2AMU
& Gordon West, WB6NOA

A comprehensive source-book on VHF propagation by two great authors!

Here's a sampling of what you'll find inside:
* Tropo Ducting * Aurora * Meteor Scatter
* TEP * Sporadic-E * Combo Modes

Order No. VHFProp **\$15.95**



2005/06 calendars

January 2005 - March 2006

Classic Calendar

15 spectacular sepia-tone, vintage radio images!

Order No. CCAL ~~\$10.95~~ **\$6.95**

Ham Radio Operators Calendar

15 spectacular color images of shacks, antennas, scenics & personalities.

Order No. CCAL ~~\$10.95~~ **\$6.95**

Sale!



HR Anthologies

\$19.95 ea.

Buy all 4 for only \$75

Now you can enjoy collections of the best material published in *Ham Radio* magazine, conveniently arranged by subject and original publication date. Choose your interest, your time period and choose your anthology!

Homebrewing Techniques Order # AHOME
Test Eqp't & Repair Techniques... Order # ATEST
Antennas - 1968 - 1972 ... Order # ANTS1
Antennas - 1973 - 1975 Order # ANTS2
Get all 4 for \$75 plus Free shipping ... Order # ASET

Contesting in Africa Multi-Multi on the Equator

by Roger Western, G3SXW

and the Voo Doo Contest Group

A compelling array of contesting and DXing experiences from one of the most unique operating venues on earth - the African continent. The personal stories told by the world-renowned and witty personality, Roger Western, G3SXW, make this book a must have in any ham radio library.

Order No. AFRI **\$19.95**



Heathkit - A Guide to the AR Products

by Chuck Penson, WA7ZZE

This greatly expanded Second Edition is a must for collectors and Ham history buffs! Pick up this 328-page volume and you won't be able to put it down!

Order No. HEATHKIT **\$29.95**



The Short Vertical Antenna and Ground Radial

by Jerry Sevic, W2FMI

This small but solid guide walks you through the design and installation of inexpensive, yet effective short HF vertical antennas. Antenna restrictions a problem? This book could keep you on the air!

Order No. SVERT **\$10.00**



W6SAI HF Antenna Handbook

by Bill Orr, W6SAI

Inexpensive, practical antenna projects that work! Guides you through the building of wire, loop, Yagi and vertical antennas.

Order No. W6SAI **\$19.95**



videos

~~\$19.95~~
NOW ONLY \$12.95 ea.



Buy all 7 for your Club for only **\$69.95**

Ham Radio Horizons: The Video Order No. VHOR
Getting Started in Packet Radio Order No. VPAC
Getting Started in Ham Radio Order No. VHR
Getting Started in Contesting Order No. VCON
Getting Started in DXing Order No. VDX
Getting Started in VHF Order No. VVHF
Getting Started in Amateur Satellites Order No. VSAT

Ham Radio Magazine on CD

Brought to you by CQ & ARRL

Enjoy quick and easy access to every issue of this popular magazine, broken down by years!

Three sets, each containing 4 CDs -

1968-1976 Order No. HRCD1 **\$59.95**

1977-1983 Order No. HRCD2 **\$59.95**

1984-1990 Order No. HRCD3 **\$59.95**

Buy All 3 Sets and Save \$29.90!

Order No. HRCD Set **\$149.95**



Hot Item!

FREE

Shipping & Handling with every \$75 purchase!

Name _____ Callsign _____

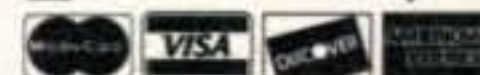
Street Address _____

City _____ State _____ Zip _____

Qty	Item #	Description	Price	Total Price
Shipping & Handling: U.S. & Possessions - add \$5 for the first item, \$2.50 for the second and \$1 for each additional item. * FREE shipping on orders over \$75.00 (merchandise only). Foreign-Calculated by order weight and destination and added to your credit card charge.			Total	

Method of payment ☐ Check ☐ Money Order ☐ Visa ☐ MasterCard ☐ Discover ☐ American Express

Credit Card No. _____ Expiration date _____



CQ Communications Inc., 25 Newbridge Rd., Hicksville, NY 11801/516-681-2922; Fax 516-681-2926
Order Toll-Free 800-853-9797

It's All About the Message

Communications—the exchange of information between two points. Seems like a simple definition. Amateur radio operators pride themselves on getting a message from point A to point B when normal communications fail.

As I was reading some history of Philadelphia, I came across examples of communication successes and a failure. One of the first rapid deliveries of mail from Philadelphia across the Delaware River to New Jersey came in the form of the first hot-air balloon flight in North America. The pilot, Jean-Pierre Blanchard, carried an “air mail” letter from President George Washington to Gloucester County, New Jersey. The message was delivered in 45 minutes.

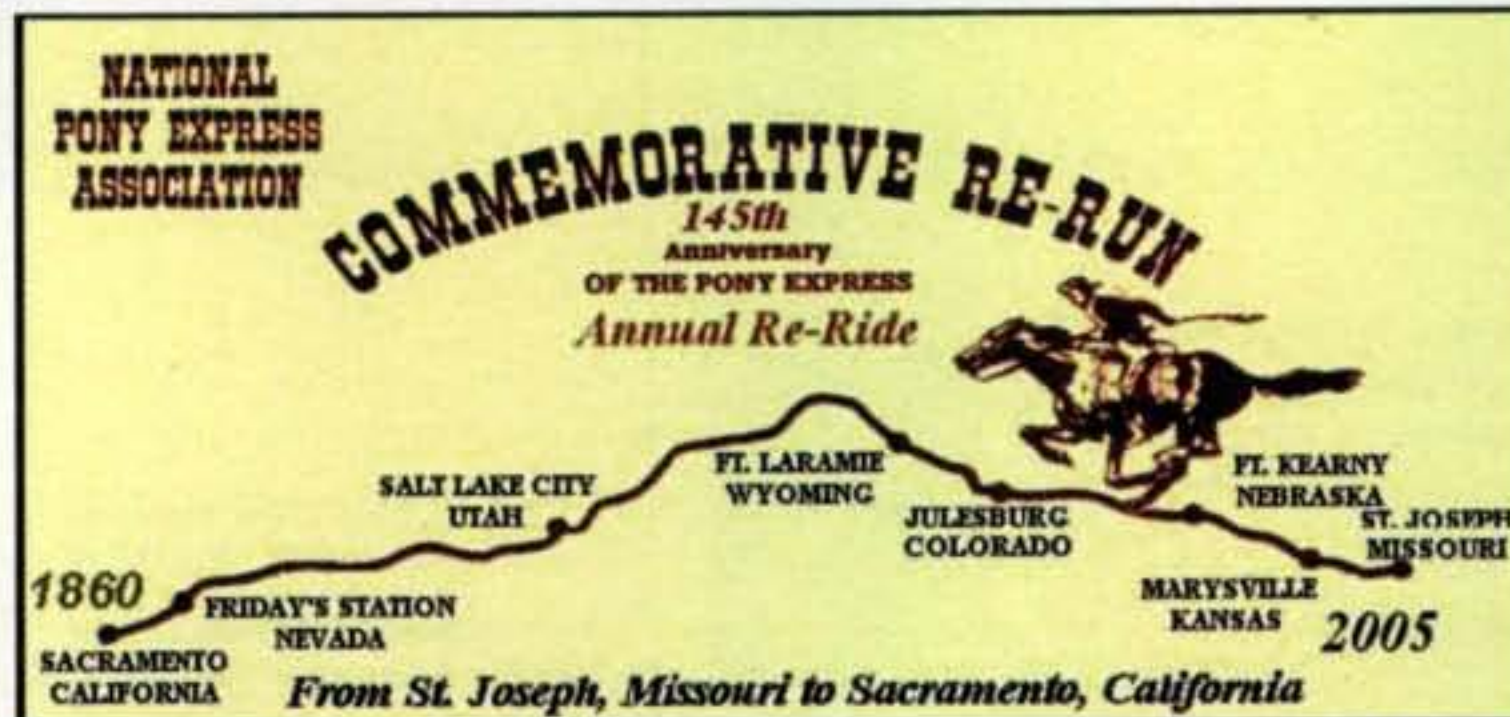
In October 1980 the *S.S. Poet* left Philadelphia bound for Egypt with a cargo of grain. The ship encountered high seas and hurricane-force winds. It is believed to have sunk in an area called the Bermuda Triangle. Radio operators attempted to check in with the ship at scheduled times, and when there wasn't any contact, they notified ports in Egypt to keep an eye out for it. Search-and-rescue teams never went to search for the ship until it was too late. No trace of the ship or its crew was ever found.

This month we'll look at combining past and present technology to make sure the mail gets through. We'll also look at new avenues of spreading the word about amateur radio.

A Country Moves West

As early pioneers began to move west there was a need to get the mail through. The Great Salt Lake Desert was a major obstacle for travelers heading to California. Gerald Hasty, N7YOQ, told *CQ* that early efforts to find a route across the desert ran afoul of salt, heat, and lack of water. “Finally, a trail was pioneered that skirted the worst of the salt desert, going from spring to spring. The route was poor in feed, extremely isolated, muddy in the spring and fall, dusty or cold otherwise, and plagued by Indians. In spite of these drawbacks, it served the communication needs and became famous as the Overland Route.”

To get the mail across the route, the Pony Express was formed in April 1860. Its primary mission was to deliver mail and news between St. Joseph, Missouri, and San Francisco. Today the National Pony Express Association keeps the spirit and memory of the Pony Express alive by conducting a “Re-ride of the Pony Express Trail” from St. Joseph, Missouri, to Sacramento, California. The ten-day, 1966-mile trail runs through eight



Amateur radio operators provided safety communications as riders re-enacted mail delivery via the Pony Express. (Photo courtesy of the Davis County Amateur Radio Club)

states: Missouri, Kansas, Nebraska, Colorado, Wyoming, Utah, Nevada, and California. It is the longest event held annually on a historical trail in the nation, even surpassing the famed Iditarod dogsled race. The event commemorates the Pony Express of 1860–1861. Riders carried commemorative letters in a mail bag called a *mochila*, Pony Express style. A primary objective of the support teams along the way was to provide communications in the sector of trail that the rider was in and provide information to upcoming sectors as to where the rider was. This enabled the Ride Captain to have his/her riders ready when the mail arrived.

Since the ride took several days, and proceeded day and night through much territory that is still undeveloped and uninhabited, communications was needed to help coordinate the riders so that transfers could be made in a timely fashion and radio contact could be made in case of an emergency. In 1989 the Sierra Intermountain Emergency Radio Association (SIERA) started providing communications for the Pony Express Re-ride across the state of Nevada. This year the Davis County Amateur Radio Club (DCARC) coordinated communications through Utah. It is hoped that hams in other states will participate next year.

In the DCARC operations handbook for the event, the group highlights the Re-ride Communicators' “Ten Commandments.” It seems to be a good list for any event.

1. **Keep Others Informed.** Communications is what we're all about.
2. **Meet the Needs of Ride Captains and Riders.** Don't be hard to find.
3. **Think Safety.** Safety is *always* a prime objective.
4. **Be “On Stage” Continuously.** We represent amateur radio.
5. **Respect Private Property and the Rights of Others.** Always leave gates the way you found them.
6. **Anticipate.** Consider contingencies *before* they occur.

*c/o *CQ* magazine
e-mail: <wa3pzo@cq-amateur-radio.com>

7. **Adapt.** Surprises are inevitable—roll with the changing needs.

8. **Be Team Conscious.** Seek recognition from the superior group effort, no showboating.

9. **Stay Oriented.** Be able to report locations clearly, such as "Rye Patch Canyon, 23 miles east of Austin."

10. **Enjoy.** We are part of a great exercise. Take full advantage of the experience. See Utah!

Utah had about 12 operators. It was each operator's choice as to the amount of coverage he offered.

"We divided the state into about two dozen sectors and two Emergency Operations Centers (EOCs)," said Hasty. "Some volunteers are taking more than one assignment. The EOCs will be manned by at least two operators on 4-hour shifts. The field operators will be doing about 2-hour stints."

The event plan had an extensive list of 2-meter repeater frequencies along the route. It included the repeater offset frequency, the PL tone, and the repeater location. For those not familiar with the repeater coverage areas, a brief description was provided.

The field operators were required to check in with the net control station at least every 15 minutes and report the location of the horse every 30 minutes. In addition, contact was maintained with the operator on the next segment of the ride so both the horse and rider could be ready for the journey ahead. The mobile operators carried GPS devices to help report their position.

Based on reports from some of the operators, they had fun, provided a service, and participated in a little history.

Civil Air Patrol Teams Up with Ham Radio Community

In May the American Radio Relay League (ARRL) signed a Memorandum of Agreement with the Civil Air Patrol. According to the ARRL, both organizations share common goals of serving the public through efficient and effective use of radio communications. Members of both organizations engage in regular training to prepare for emergency and disaster communications. Members of both organizations provide important communications capability to the Homeland Security programs of the United States.

"Civil Air Patrol has one of the largest unified communications networks in the nation," said Lt. Col. Maurice Thomas, CAP, N3ADV. "Federal, state, and local agencies call on CAP members every day for communications support in



Mail carried in a mochila is transferred to the next rider at a mail stop on the route. (Photo courtesy of Dave Harris, K7PDW)

search-and-rescue missions and disaster relief. CAP needs 'implementers' for its communications technology, and the highly skilled ham radio operators throughout the nation are a natural resource."

CAP's national commander, Maj.

Gen. Dwight Wheless, said, "Radio hobbyists are called 'amateurs' only because they're not paid for their work. . . . In truth, many of these hobbyists are highly skilled and knowledgeable about the latest in communications technology. Through CAP they can use those

ALPHA
RADIO PRODUCTS

ALPHA 87A

Still Brick on Key!!!

Alpha Radio Products
303.473.9232

6185 Arapahoe Rd.
www.alpharadioproducts.com

Boulder, Colorado 80303

skills to serve their communities, establishing and maintaining radio communications for emergency services, disaster relief, search and rescue, and aerial imaging."

ARRL Media and Public Relations Manager Allen Pitts, W1AGP, added, "We look forward to educating our members about CAP, and CAP members about ARRL. . . . It's the love of learning, not money, that drives the ham community. From Morse code to high-speed digital algorithms, a wire up in a tree to their own satellite communications systems, hams love to make it happen. The slogan 'when all else fails—ham radio!' is more than just words. They know ham radio communications worked again and again when other systems failed. One way or another, hams get their messages through."

CAP maintains a dedicated nationwide HF and VHF network on federal government frequencies. "We operate over 550 VHF repeaters spread across the country, as well as HF, tactical VHF/UHF, data, and commercial satellite applications," said Malcolm Kyser, CAP National Headquarters chief of communications and also an active ham radio operator, KG4G.

"The CAP network is a 24/7 emergency services resource that we rely upon to support an almost unlimited variety of missions. The technicians who operate and maintain this system provide a vital resource for saving lives throughout the nation."

Communications plays a major role in all of CAP's operations, including homeland security, damage assessment, search and rescue, and disaster relief. Radio communications was key in CAP's impact assessment missions during last year's hurricanes in Florida, ice storms in Arkansas and New York, and floods in Missouri.

"In many emergency situations the Amateur Radio Emergency Service (ARES), the Radio Amateur Civil Emergency Service (RACES), and other amateur radio emergency groups have found themselves working side by side with CAP members," Pitts said. "This formal agreement between our two groups acknowledges the reality that in a disaster we all work for the common good."

Civil Air Patrol is a nonprofit organization with almost 60,000 members nationwide. It is the official auxiliary of the U.S. Air Force. CAP performs 95 percent of continental U.S. inland search-and-rescue missions as tasked by the Air Force Rescue Coordination Center. Its volunteers also perform homeland security, disaster relief, and counterdrug missions

at the request of federal, state, and local agencies. The members take a leading role in aerospace education and serve as mentors to the almost 25,000 young people currently participating in CAP cadet programs. CAP has been performing missions for America for more than 60 years.

On the Water....

In early June the ARRL and the United States Power Squadrons (USPS), a national boating and educational organization dedicated to making boating safer and more enjoyable, ratified a new Memoranda of Understanding, linking the two services in their efforts to better serve the public.

"The organizations have each served the people for almost a century, and combining their efforts will allow them to better serve our country," said Darrell Allison, National Chairman of USPS's Marketing/Public Relations Committee.

Dave Sumner, K1ZZ, CEO of the ARRL, added, "ARRL and USPS have long and distinguished histories dating back to 1914, but both organizations have their focus on the future. It is a pleasure to be working together."

Organized in 1914, USPS is "America's Boating Club. It is the largest network of families and friends in the world today having fun on the water. USPS is a world leader in speaking out for and promoting the needs of all recreational boaters. USPS teaches classes in seamanship and navigation to help our members improve their boating skills, confidence, and performance on the water. In addition, through a cooperative program with the US Coast Guard, squadron members conduct Vessel Safety Checks to make sure boaters have all US Coast Guard required equipment aboard.

The USPS has 50,000-plus members organized into 450 squadrons across the country and in the Virgin Islands, Puerto Rico, and Japan. These boating families contribute to their communities by promoting safe boating through education. Local squadrons offer public boating safety courses on a regular basis. USPS squadrons have offered these courses for almost a century and have educated more than 4 million boaters to date. Successfully completing a USPS boating course qualifies boaters to meet the educational requirement for boat licensing and operation in most states and meets one of the requirements for boaters to become members of their local Power Squadrons.

"This was a great way to introduce boating education to the thousands of

ARRL members," said Don Stark, ham radio operator and USPS member. "Many hams are also boaters and see the value of continuing boating education. The USPS advanced and elective courses are a natural for this kind of study." Stark also noted, "Often USPS on-the-water events are coordinated using amateur radio, so the match of boating and amateur radio operations is a good fit. The ability to have such a resource on board would make any skipper safer and better able to render aid if needed."

A new *Amateur Radio Learning Guide for Boaters*, a cooperative effort by USPS and ARRL, was released recently. "This new publication is a great reference for anyone interested in ham radio operation, ashore or on the water," indicated Darrell Allison of USPS Marketing. Allison also noted the many other common interests of hams and boaters, including GPS, APRS, RADAR, and Marine Electronics.

The Memoranda of Understanding can be seen at <<http://www.arrl.org/FandES/field/mou/#usps>>. Information about the USPS is available at <www.usps.org>.

Know Your Tools and Keep Your Cool

The Davis County Amateur Radio Club reminds its members that in an emergency the Net Control Station will monitor a secondary frequency. Be familiar with the radio you are using so you can change frequency, operate on a simplex frequency, and if necessary operate simplex on either the repeater input or output frequency. The time to learn this is in the comfort of your home. These tools can be a lifesaver when the repeater is 50 miles away behind a rock and another operator is 10 miles away within line of sight.

In Closing . . .

This month we would like to thank Gerald Hasty, N7YOQ, and the ARRL for providing information for the column.

Over the summer what have you been doing that involves amateur radio public service? Each month you can check out the public service discussion area on the CQ website (www.cq-amateur-radio.com). Here we will post weblinks to groups or events mentioned in the column. We also will post information on emergency communications that was received too late for publication.

I hope you are having a great summer. Until next month . . .

73, Bob, WA3PZO

DC Power Distribution

ALL THE FEATURES - LESS \$\$\$

- Anderson PowerPole Connectors
- Rated for 30 Amps
- ARES/RACES Standard Connection
- RF Suppression
- Surge & Polarity Protection
- One-Year Warranty
- Made in the U.S.A.



PowerPanel 14

PowerPanel 8



PowerPanel 6



PowerPanel 4



DC Power Meter For Hams



MADE FOR HAMS NOT RC MODELS

- Displays V, A, AH, W & WH
- Programmable voltage warning
- Timer
- Tracks high & low Volts / Amps
- Sense resistor on positive
- One-Year Warranty
- Made in U.S.A.

Digital Mode Interface

UNMATCHED FEATURES

- USB Interface - No converter
- Rig control with optional cable
- Audio Isolated in Both Directions
- No External Power
- Weighs Under 7 oz.
- Works with All Digital Mode SW
- Includes HamScope & Digipan
- One-Year Warranty
- Made in U.S.A.

VERSIONS FOR MOST RIGS



EZ-PSK USB

**NOW AT
HRO**

888-676-4426

www.saratogaham.com

SARATOGA
AMATEUR RADIO PRODUCTS
467 Reynolds Circle
San Jose, CA 95112

Why Work Americans in Iraq?

Editor, CQ:

Although I agree that to hear the "YI" prefixes on the air is a good thing (May '05 issue), I do not understand why anyone would want to work a pseudo-YI? I mean, just what is the point of working Iraq when 99% of the time an American national is speaking on the mic (or CW) at the other end, instead of an actual Iraqi citizen! If one desires to speak to an American ham that's fine, but if one really needs a genuine 24-carat absolutely guaranteed Iraq contact, a member of the indigenous population of Iraq who also happens to be a ham is preferable to one whose home town might be located in downtown Los Angeles.

Suffice it to say, even though I've heard several "Iraqi" stations calling CQ, I've denied them the pleasure of working G4OWY, be it SSB or CW.

Ray J. Howes, G4OWY
Weymouth, Dorset, UK

Ray—I think that most of us, in most circumstances would prefer to contact a native resident of a country rather than a foreigner operating there. However, when there are few or no resident hams, it is not at all unusual for foreign amateurs to operate a DXpedition from that country, often with the goal of helping persuade government officials to liberalize licensing restrictions. If these operations are authorized by the government of the country involved, contacts with those stations are considered "genuine 24-carat" for award credit, etc.

In the specific case of Iraq, I think a recent letter from author Bruce McPherson says it far better than I can:

Just to update you, we have found a lot more hams out here, and we have an active weekly net on 40 meters. But more importantly, we are beginning to work with our Iraqi counterparts in rebuilding ham radio in Iraq ... after decades of oppression. So we want to do more than just work DX, we want to make a difference...

73 de YI9AC/AB3AC

DX Field Award

Editor, CQ:

As a 6-meter paper-chaser, I'm delighted with the new award; I scurried to my log and found 56 fields already in hand, so I'm just waiting for the details.

But why a startup date of 1 Jan. 1980? The announcement indicates it was the year "the grid system was adopted for amateur radio use." It wasn't, really. That was the year of the Maidenhead conference, where a group of Europeans selected the plan presented by G4ANB to replace the VHF/UHF QTH locator system in place in Europe since the late '50s. But it was in 1982 that the Maidenhead system was adopted by IARU Region 3. In 1983 it was adopted by IARU Region 2 and finally, by IARU Region 1, in 1985.

Offhand, I don't think a 1 Jan. '80 startup date will cause any problems; it's just that it seems odd to pick a point in time when hardly anyone—save the conferees—knew what grid they were in!

Bud Weisberg, K2YOF

Editor, CQ:

Like the idea of your new DX Field Award.

I know it is too late, but would like to suggest the next award start from Jan. 1, 2005.

Those like me, with 50 years of amateur radio behind us—300+ countries and 1000s of QSL need to start over. It would be great to start a new award.

The use of E-qsl and ARRL LoTW would be useful for collection the new cards.

John Schroeder, N6QQ
Cerritos, CA

Bud & John—We decided on a starting point that would give people the opportunity to use existing QSLs but not be too far back in time, and the year of the Maidenhead conference—which also happens to provide a 25-year window—seemed like a convenient if somewhat arbitrary starting point. Our rules leave the door open for acceptance of electronic/online confirmations once we are able to work out satisfactory arrangements with all concerned.

our readers say

Lifetime Licenses Proposed for UK Radio Amateurs

"Ofcom wishes to see Amateur Radio prosper. Our proposals, set out in this public consultation, are intended to safeguard the controls which matter in ensuring the integrity of amateur radio, while removing unnecessary bureaucracy and cost which add little to the hobby and may even dissuade newcomers from taking part."

from May 26, 2005 consultation document

The British Ofcom (the UK spectrum regulator, similar to our FCC) has released its long-awaited proposal to "deregulate" amateur radio in the United Kingdom. It is obvious that Great Britain wants to get out of the tedious and expensive ham radio licensing business. Ofcom wants to reduce the regulatory burden for amateur radio users by replacing the current paper-based licensing system, renewed annually, with a new, low-cost electronic license for life. "Implementation of the new proposal will form the regulatory regime for the next 20 years," Ofcom said.

Some UK amateurs feared the government wanted to eliminate the need for ham operators to hold a license, but such is not the case. "Licence exemption could damage the integrity of Amateur Radio operations and conflict with the UK's international obligations," Ofcom said. "Amateur Radio transmissions may travel worldwide so these arrangements need to comply with the International Telecommunication Union (ITU) Radio Regulations. . . . Article 18 of the Radio Regulations requires that radio amateurs be licensed."

Ofcom therefore believes that radio amateurs must continue to hold a valid amateur radio license and a valid Radio Amateur Examination Pass Certificate in order to be a licensee. The purpose of the license is to ensure international consistency with the arrangements set out in the Radio Regulations and to provide documentary evidence of the status and competence of the licensee. "This is particularly important for licensees who wish to operate outside the UK."

Ofcom also is not removing any amateur radio regulations that safeguard the integrity of radio spectrum used by amateur radio. Basically, the government wants to shift the licensing burden to the internet, similar to what the United States has done successfully.

The Free Licensing System

There are currently three amateur radio license classes in the United Kingdom: Foundation,

Intermediate, and Full. These levels are progressive, and licenses are issued to applicants who have passed the necessary examinations in radio theory, operating technique, electromagnetic compatibility, and regulations appropriate for their class of license. The examination program is carried out by the Radio Society of Great Britain (RSGB), the national ham radio society in Great Britain.

The Foundation license provides simple entry into amateur radio. The Intermediate license permits access to an increased range of frequency bands and at higher power levels. The Full license covers the widest range of frequency bands and at the maximum power levels permitted for radio amateurs. Amateur radio licenses are currently issued by the Radio Licensing Center (RLC), a subsidiary of the British postal system, and are renewable annually.

In a nutshell, the UK intends to introduce a simpler, low-cost electronic licensing process. The proposal provides for lifetime licenses, thereby avoiding the need for renewals, which currently cost most UK amateurs £15 a year—about \$28.00 USD. (The fee is waived for applicants under 21 and over 75 years of age.)

If the new system is adopted, name and address changes would be entered directly into the database by the amateur using his/her personal computer. Hard-copy licenses would not be mailed. Instead electronic, printable licenses (probably a PDF document) would be available online free of charge. This would save the government thousands of dollars in administrative, printing, mailing, and postage costs.

Ofcom would still retain the ability to process paper applications if the user so desires, in which case an administrative fee would be charged. Special arrangements would be made for disabled applicants so that they would not be disadvantaged by the new licensing system.

The introduction of "licenses for life" would in no way reduce standards. The British government would continue to retain the database of UK radio amateurs and users must still pass the necessary examinations to obtain a license. Not discussed was how the radio amateur's license class would be kept current in the database. However, it is assumed that this would be maintained by the RSGB, since it administers the license examination program for Ofcom.

There would be no change in Ofcom's enforcement power, and it will continue to take action on violations of the licensing regulations and to monitor frequencies for undue interference.

Ofcom would also continue to notify amateur radio license holders of changes to their license terms and conditions. The existing ham radio pop-

*1020 Byron Lane, Arlington, TX 76012
e-mail: <w5yi@cq-amateur-radio.com>

AMERITRON . . . 800 Watts . . . \$799!

More hams use Ameritron AL-811/H amplifiers than any other amplifier in the world!



Only the Ameritron AL-811H gives you four fully neutralized 811A transmitting

AL-811H
\$799
Suggested Retail
4-Tubes, 800 Watts

tubes. You get absolute stability and superb performance on higher bands that can't be matched by un-neutralized tubes.

AL-811
\$649
Suggested Retail
3-Tubes, 600 Watts

You get a quiet desktop linear that's so compact it'll slide right into your operating position -- you'll hardly know it's there . . . until QRM sets in. And you can conveniently plug it into your nearest 120 VAC outlet -- no special wiring needed.

You get all HF band coverage (with

license) -- including WARC and most MARS bands at 100% rated output. Ameritron's Adapt-A-Volt™ hi-silicon core power transformer has a special buck-boost winding that lets you compensate for high/low power line voltages.

You also get efficient full size heavy duty tank coils, slug tuned input coils, operate/standby switch, transmit LED, ALC, dual illuminated meters, QSK with optional QSK-5, pressurized cooling that you can hardly hear, full height computer grade filter capacitors and more. 13 1/4 Wx8Hx16D inches.

AL-811, \$649. Like AL-811H, but has three 811A tubes and 600 Watts output.

AMERITRON no tune Solid State Amplifiers

ALS-500M 500 Watt Mobile Amp



AL-500M
\$799
Suggested Retail

500 Watts PEP/400W CW output, 1.5-22 MHz, instant bandswitching, no tuning, no warm-up. SWR, load fault, thermal overload protected. On/Off/Bypass switch. Remote on/off control. DC current meter. Extremely quiet, fan off until needed. Uses 13.8 VDC. Compact 9Wx3 1/2 Hx15D in., 7 lbs.

ALS-600 Station 600 Watt FET Amp



AL-600
\$1299
Suggested Retail

No tuning, no fuss, no worries -- just turn on and operate. 600 Watts PEP/500W CW, 1.5-22 MHz, instant bandswitching, SWR protected, extremely quiet, lighted Cross-Needle SWR/ Wattmeter, front panel ALC control. 120 or 220 VAC. Inrush protected. 9 1/2 Wx6Hx12D in.

AL-80B . . . Desktop Kilowatt 3-500G Amp



AL-80B
\$1349
Suggested Retail
AL-80B kilowatt output desktop linear

amplifier doubles your average SSB power output with high level RF processing using our exclusive Dynamic ALC™!

You get cooler operation because the AL-80B's exclusive Instantaneous RF Bias™ completely turns off the 3-500G tube between words and dots and dashes. Saves hundreds of watts wasted as heat for

cooler operation and longer component life.

You get a full kilowatt PEP output from a whisper quiet desktop linear. Compact 15 1/2 Wx8 1/2 Hx14D inches. Plugs into your nearest 120 VAC outlet. Covers 160 to 15 Meters, including WARC and MARS (user modified for 10/12 Meters w/license).

You get 850 Watts output on CW, 500 Watts output on RTTY, an extra heavy duty power supply, genuine 3-500G tube, nearly 70% efficiency, tuned input, Pi/Pi-L output, inrush current protection, multi-voltage transformer, dual Cross-Needle meters, QSK compatibility, two-year warranty, plus much, much more! Made in U.S.A.

Near Legal Limit™ Amplifier



AL-572
\$1445
Suggested Retail

New class of Near Legal Limit™ amplifier gives you 1300 Watt PEP SSB power output for 60% of price of a full legal limit amp! 4 rugged 572B tubes. Instant 3-second warm-up, plugs into 120 VAC. Compact 14 1/2 Wx8 1/2 Hx15 1/2 D inches fits on desktop. 160-15 Meters. 1000 Watt CW output. Tuned input, instantaneous RF Bias, dynamic ALC, parasitic killer, inrush protection, two lighted cross-needle meters, multi-voltage transformer.

HF Amps with Eimac 3CX800A7

These HF linears with Eimac® 3CX800A7 tubes cover 160-15 Meters including WARC bands. Adjustable slug tuned input circuit, grid protection, front panel ALC control, vernier reduction drives, heavy duty 32 lb. grain oriented silicone steel core transformer, high capacitance computer grade filter capacitors. Multi-voltage operation, dual lighted cross-needle meters.



AL-800
\$1825
Suggested Retail
1 tube, 1250 W

AL-800H
\$2695
Suggested Retail
2 tubes, 1.5 kW Plus

AMERITRON full legal limit amplifiers

AMERITRON legal limit amps use a super heavy duty Peter Dahl Hypersil® power transformer capable of 2.5 kW!

Most powerful / 3CX1500/8877



AL-1500
\$3045
Suggested Retail
Ameritron's most powerful amplifier uses the herculean

Eimac® 3CX1500/8877 ceramic tube. It's so powerful that 65 watts drive gives you full legal output -- and it's just loafing because the power supply is capable of 2500 Watts PEP.

Toughest / 3CX1200A7



AL-1200
\$2645
Suggested Retail
Get ham radio's toughest tube with the Ameritron

AL-1200 -- the Eimac® 3CX1200A7. It has a 50 Watt control grid dissipation. What makes the Ameritron AL-1200 stand out from other legal limit amplifiers? The answer: A super heavy duty power supply that loafs at full legal power -- it can deliver the power of more than 2500 Watts PEP two tone output for a half hour.

Classic / Dual 3-500Gs



AL-82
\$2545
Suggested Retail
This linear gives you full legal output using a pair

of Amperex® 3-500Gs. Competing linears using 3-500Gs can't give you 1500 Watts because their lightweight power supplies can't use these tubes to their full potential.

Call your dealer for your best price!

Free Catalog: 800-713-3550

AMERITRON®

. . . the world's high power leader!

116 Willow Road, Starkville, MS 39759
TECH (662) 323-8211 • FAX (662) 323-6551
8 a.m. - 4:30 p.m. CST Monday - Friday
For power amplifier components call (662) 323-8211
<http://www.ameritron.com>

Prices and specifications subject to change without notice. ©2004 Ameritron.

ARB-704 amp-to-rig interface... \$49⁹⁵

Protects rig from damage by keying line transients and makes hook-up to your rig easy!

RCS-4 Remote Coax Switch... \$139

Use 1 coax for 4 antennas. No control cable needed. SWR <1.25, 1.5 - 60 MHz. Useable to 100 MHz.

RCS-8V Remote Coax Switch... \$149

Replace 5 coax with 1! 1.2 SWR at 250 MHz. Useable to 450 MHz. <.1 dB loss, 1kW@150MHz.

RCS-10 Remote Coax Switch... \$159

Replace 8 coax with 1! SWR<1.3 to 60 MHz. RCS-10L, \$199.95 with lightning arrestors.

FCC Remarks At the 2005 Dayton Hamvention®

The FCC's Bill Cross, W3TN, and Riley Hollingsworth, K4ZDH, were the featured speakers at the Dayton Hamvention® FCC Forum. The Hamvention® also hosted the 2005 ARRL National Convention. Bill Cross is a staff official in the FCC's Wireless Telecommunication Bureau (WTB) and is largely responsible for amateur radio rulemaking. Riley Hollingsworth handles amateur issues in the Enforcement Bureau.

Cross discussed the status of several amateur radio proceedings that are before the Commission.

The "Red Light" rule (MD Docket No. 02-339) has now been implemented in the Amateur Service. Basically, it prohibits the FCC (and all other federal agencies) from granting benefits when the applicant owes the government money. Cross said, "If you are delinquent in any non-tax debts owed to the Commission, you will be ineligible to receive a license or other benefit until the delinquency has been paid in full or you have made arrangements for payment. If the debt hasn't been paid or arrangements made, your application will be dismissed." "Dismissed" is government jargon for "canceled without action." The rule has its roots in the Debt Collection Improvement Act that Congress passed in 1996. This primarily affects individuals who have delinquent debts such as FCC fines assessed by the Enforcement Bureau.

Another decision (ET Docket No. 04-139 released March 16, 2005) concerns spectrum impacted by WRC-2003. For the Amateur Service, the order made some changes to the 7-MHz allocations in ITU Regions 1 and 3. "In the band 7000-7100 kHz, the Amateur and Amateur Satellite services have the primary allocation throughout the world. Effective January 1, 2005 the Amateur Service was elevated to co-primary status with the broadcasting service between 7100-7200 kHz in ITU Regions 1 and 3. These regions include Europe, Asia, Africa, and most of the Pacific. After March 29, 2009 this 100 kilohertz will be allocated to the Amateur Service on an exclusive basis throughout most of the world." We may still hear broadcast stations between 7100 and 7200 after 2009, but there should be a lot fewer of them, Cross said.

The FCC released an Order (ET Docket No. 04-37) facilitating Broadband over Power Lines, or BPL. These systems may operate either inside a building ("In-House BPL") or over utility poles and medium-voltage electric power lines ("Access BPL"). Licensed radio services (including the Amateur Service) must be protected from harmful interference because BPL systems operate under Part 15 rules. The FCC believes that BPL offers the potential of another way to extend broadband access "...because power lines reach virtually every residence and business in this country. [The FCC believes] ...Access BPL service could provide

competition to existing cable, DSL, and other broadband services." Adaptive interference reduction techniques—such as "notch" filtering or complete avoidance of frequencies or bands of frequencies—in order to avoid site specific, local use of the same spectrum by licensed services also is required. Cross said there is "...a lot of uncertainty surrounding BPL ...its technical and financial viability ...and where, how, and if it will fit into the communications future."

The FCC released a Notice of Proposed Rulemaking (WT Docket No. 04-140) a year ago proposing amateur phone band expansion. It addressed 20 Petitions for Rulemaking. The main proposal is to eliminate the Novice and Technician Plus class telegraphy bands, and to use that spectrum to expand the portion of the 80-, 40-, and 15-meter bands that may be used for phone communications by other license classes. If adopted, Novice and Technician Plus class licensees would be authorized CW privileges in the General (and Advanced) class CW bands, plus CW, RTTY, and data emissions privileges at 28.0-28.3 MHz. "This proposal has the support of the amateur community," Cross acknowledged.

Based on a petition from the QCWA (Quarter Century Wireless Association), the FCC has proposed to allow currently licensed radio amateurs to designate a specific amateur radio club to acquire their callsign after their death. "As the rules are now, a licensee may not express a desire as to which radio club receives his/her callsigns in memoriam. But any of their relatives can." A recipient club would get priority in applying for the callsign.

The FCC has proposed to prohibit acceptance of more than one application per applicant per vanity callsign. This will preclude applicants from having an unfair advantage by having more than one application in the random drawing for a specific station callsign.

The FCC also has proposed to allow commercial manufacturers and distributors to manufacture and market amateur radio amplifiers capable of transmitting on the 12- and 10-meter amateur bands. Cross said, "Comments indicate that the amateur community widely agrees with relaxing this restriction."

Another FCC proposal concerns the Radio Amateur Civil Emergency Service (RACES). The proposal is to delete the frequency bands and segments specified for use during certain emergencies.

The FCC wants to eliminate the requirement that a public announcement of license examination test locations and times be made since "...adequate announcement is on club and VEC websites, in newsletters, and in other media." Public announcements could still be made, of course, but would not be required. The FCC

ulation will receive notifications by mail free of charge, although they could elect to receive electronic notifications if they so prefer. Future license holders, however, will have the option to either accept electronic notifications (in which case the license would be issued free of charge) or make an application by mail for the license and receive postal notifications (in which case an administrative charge would be payable). The purpose of the yet-to-be-determined charge is to cover the costs associated with providing service by mail—"...there would be no charge for the use of Amateur Radio spectrum."

In addition to reviewing comments from the public, Ofcom said it would retain an independent market research firm to determine and preliminarily evaluate the views of UK's radio amateurs.

ADVANCED SPECIALTIES INC.

New Jersey's Communications Store

YAESU ALINCO

AMATEUR RADIO'S VALUE LEADER™

Authorized Dealer



VX-7R
Quadband
Water Proof HT



DR-235T
220MHz Mobile/Base with
Alphanumeric Channel Labels

ALINCO * COMET * MALDOL * MFJ * UNIDEN * BEARCAT
*** HUSTLER * LDG * MAHA * ANLI * RANGER * YAESU**
AMATEUR RADIO - SCANNERS - BOOKS - ANTENNAS -
FILTERS - MOUNTS - ACCESSORIES & MORE



DJ-V5
Wideband
VHF/UHF
FM Handheld



FT-7800R
Dual Band Mobile With
Wide Receive Coverage

Closed Sunday & Monday NO CATALOGS

Orders/Quotes **1-800-926-9HAM**

(201)-VHF-2067

114 Essex Street Lodi, NJ 07644

www.advancedspecialties.net

BIG ONLINE CATALOG

also proposes to require that VEs give examination credit for the telegraphy examination element to an examinee who holds a Technician Class license document granted after February 14, 1991, and who has documentation showing he/she has passed a telegraphy examination element . . . and to eliminate the mandated ten-day time during which VEs and VECs must submit or forward successful applications.

The FCC is in the process of acting on 18 petitions that propose amendments based on changes in the International Radio Regulations that were adopted at WRC-03. "Most of the petitions request that we eliminate the Morse code requirement for the Technician Plus and General class licenses and that we keep three license classes as we have now," Cross said. "A few of the petitions request that we keep the 5 wpm re-quirement for the Amateur Extra class licenses. Some petitions request that the FCC automatically upgrade Technician class licensees to General, and Advanced class licensees to Amateur Extra class. The ARRL, the NCVEC (National Conference of VECs), and others request a comprehensive restructuring of operating privileges, including a new class of beginning operator license. NCVEC wants the new class called the Communicator class with distinctive call signs coming from the NA1AAA to NZ0ZZZ block."

"There will be a NPRM addressing the WRC-03 related petitions later this summer or early fall, and possibly an Order written for the NPRM in Docket 04-140." Comments on the NPRM will be received until early 2006 and it is anticipated that an Order will be adopted and released next year. Planning has already started for the next World Radio Conference (WRC-07) and consideration is being given for an Amateur Service allocation in the LF part of the spectrum.

Riley Hollingsworth covered the changes that are going on at the Commission. There is a new Chairman (Kevin Martin), and many bureaus and divisions have new leadership. The Wireless Telecommunication Bureau (which regulates amateur radio) is in the process of getting a new chief.

Hollingsworth covered the state of various enforcement issues, including the recent arrest of Jack Gerritsen for jamming amateur communications and other radio services. Gerritsen, 68, who was briefly licensed as KG6IRO, was charged with a felony charge of malicious interference and a misdemeanor count of transmitting radio signals without a license. The two charges carry a potential penalty of 11 years in federal prison.

Hollingsworth acknowledged that he handles power-line interference enforcement issues, but not interference caused by Broadband over Power Lines (BPL). The FCC is in the process of developing a website whereby the public can report interference from BPL systems.

The closing date for comments on the "Public Consultation" is August 18, 2005. The document can be found on the web at: <www.ofcom.org.uk.>

Ofcom said it regards UK amateur radio as an important and popular hobby that can provide useful training for technical careers, and it will ensure that the needs of the community are reflected in its policymaking. There are more than 63,000 radio amateurs in the British Isles. (There are ten times more in the U.S. and its possessions.)

The RSGB said it was pleased that Ofcom had recognized the value and importance of amateur radio in its proposal, something Ofcom had not done in preliminary versions. At press time, though, the RSGB had not taken a public position regarding the proposal. Over the last several months the society has expressed great concern that this could be a "Trojan horse" that might be the first step toward complete deregulation of amateur radio in the UK—something Ofcom now says would not be permitted under international law. Public comments on the proposals are being accepted through mid-August, after which Ofcom eventually will issue the equivalent of the FCC's Report and Order.

73, Fred, W5YI



Bend the **IR** needle.

Meet the MonstIR

Want to send a strong signal? Introducing the MonstIR 4 element Yagi. Mono-band performance on 40m, 30m, 20m, 17m, 15m, 12m, 10m, 6m and every single frequency in between! Go ahead, bend their needle!

- 6.9 - 54 MHz continuous coverage
- 100 mph wind rating EIA-222-C
- Rated 3000 watts key down
- Switch directions 180° in 3 seconds
- Simultaneous gain in opposite directions
- Unequaled gain and front-to-back
- Remotely adjust elements from your shack
- Cycle tested 2 million band changes without a failure
- Easy assembly



More than MonstIR!

We make a variety of other products to help get your signal out! Log-on to www.steppir.com to see our full product line-up

www.steppir.com

phone 425-391-1999 fax 425-391-8377

Fluid Motion Antenna Systems • 23831 SE Tiger Mtn Rd. • Issaquah, WA 98027

*3 active elements on 6.9 - 13.5 MHz

SteppIR
Antenna Systems

Super Video Sale!

videos videos

\$19.95 each – Now \$12.95 Buy more and save!

Buy 2 or 3 for \$11.95 each

Buy 4 to 6 for \$10.95 each

Buy all 7 for your Club for only ~~\$99.95!!~~

Now \$69.95!!

CQ Communications, Inc.

25 Newbridge Road, Hicksville, NY 11801

Fax: (516) 681-2926

Call Toll-Free: 1-800-853-9797

www.cq-amateur-radio.com

- Getting Started in Ham Radio
- Getting Started in VHF
- Getting Started in DXing
- Getting Started in Packet
- Getting Started in Amateur Satellites
- Getting Started in Contesting
- Ham Radio Horizons

Taking It With You— Ham Radio, that is

Our fun-in-the-sun theme continues this month with a special focus on portable operations from the field, campsite, or vacation cottage. In addition to sharing details of some unique ideas and neat new accessories, we also will briefly discuss working the OSCAR satellites the easy way with portable gear. Let's begin with views of a folding-chair/desk you can carry almost anywhere and set up in only a couple of minutes.

Director's Chair Portable

Have you noticed how those folding wood and canvas chairs sold at Wal-Mart and similar variety stores are oh so comfortable and versatile? You can stretch out and relax in one for hours on end, they are inexpensive, and they also can quickly be modified with a couple of wood boards to make a handy operating desk (photos A and B). If you have two folding chairs, you can use one like a desk and position it alongside the second chair to produce a real laid-back setup for casual use. Nice!

Look around your house and you probably will find some unused boards that will work fine for making the desk. An extra shelf from a computer desk, entertainment center, or TV stand, for example, works great. Just open the chair so its frame is approximately the same width as the shelf, position it across the chair's seat area, and then add your gear while allowing room for a mic, key, and logging/writing area. Fold the side arms down and then slide a second shelf for papers and accessories under the arms. Need more room, maybe to hold an extra power supply or a linear amplifier? Just slide a third shelf over the chair's lower struts and/or add an inverted U-shaped shelf above your transceiver.

There is no limit to what a creative-minded ham can do with a folding director's chair. Who knows? Some enthusiastic folks may even set up five of them in a big room to make an impromptu multi-multi contest station!

Clever Portable Antenna

One of the most often raised questions in "week-end portable" operations (and with good reason) is how to quickly install an effective HF antenna. Prior to arrival at an unfamiliar location, you can only guess at what possible supports (or obstacles) will be present, and whipping together a wire antenna on the spot leaves little time to enjoy the results. The obvious and most logical solution is to carry along your own quick-to-assemble, self-supporting antenna.

One of the most attractive items we have seen filling that bill is the popular Buddipole being made by Budd Drummond, W3FF, and his son Chris, W6HFP (photos C and D).

*4100 S. Oates Street #906, Dothan, AL 36301
e-mail: <k4twj@cq-amateur-radio.com>



Photo A— An inexpensive folding director's chair is very comfortable, easy to store and carry, and also refolds to produce a portable operating desk.



Photo B— By refolding the director's chair's arms and adding an extra shelf from a computer desk plus a couple of boards from a prior home "fix-up project" (which never worked anyway), we have a go-anywhere, three-tier, portable station desk.



Photo C— The popular Buddipole multiband portable antenna separated into four 24-inch sections that wrap in a soft blue pad and slide into its included plastic container for easy transporting. Antenna covers 40 through 2 meters by changing coil taps and whip lengths. Assembly time is less than five minutes. (Details at <www.buddipole.com>)

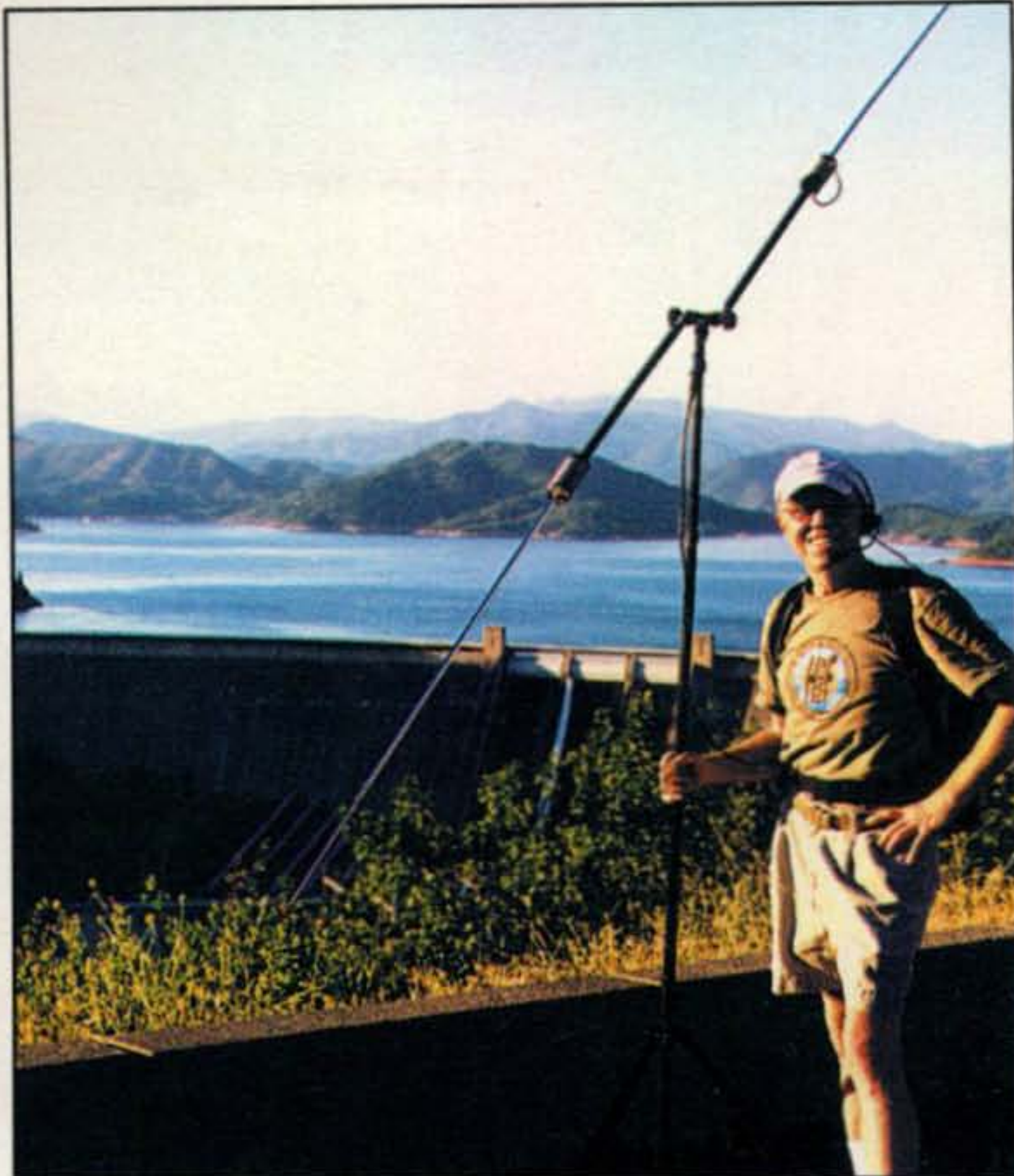


Photo D— Buddipole inventor Budd Drummond, W3FF, operating pedestrian-mobile style with a Kenwood TS-50 and gel-cell battery in a shoulder bag, boom, headset under cap, and antenna tilted to operate as a sloper. It is a true walk-and-talk HF setup.

Simply explained, the Buddipole is a near-center-loaded dipole with retractable whips on each end, a screw-apart center section with plug-in ferrite choke-type balun at the feed-point, and an optional mast/tripod-mount setup. Loading coils for each "side" of the Buddipole plus an approximate 17-foot length of 50-ohm cable with the balun at one end and a PL-259 at the other end are included with the Buddipole. Short jumpers plus moveable taps on the coils permit operation on 40 through 10 meters (exact tap points are listed on the instruction sheet), while whips alone permit 6- and 2-meter operation. When broken down for carrying in its included plastic tube, the Buddipole measures approximately 24 inches long and 3.5 inches in diameter. Assembled and extended, it measures

approximately 16 feet tip to tip. The optional support mast is also 24 inches long retracted and 8 feet tall when extended. Typical time from carrying case to assembled and ready for use is four or five minutes. An optional swivel-type center adapter is also available for the Buddipole, allowing it to be configured as a Vee, inverted Vee, sloper, L, or regular dipole.

I have used a Buddipole on several outings and weekend jaunts, and I have always been pleasantly surprised at how well it works for its size—especially on 20 and 30 meters. I have even used it on its mount placed 10 feet from my car for fixed mobile operations. Its black center section, mast, and tripod also ensure a clean, low-profile appearance anywhere you put it.

Try one. I'm sure you'll like it, and you will also enjoy more on-the-air-time rather than antenna "dink" time. More details (and antennas) are available from W3FF Antennas, 2390 Templeton Drive, Redding, CA 96002; telephone 530-226-8446 or via <www.buddipole.com>.

OSCAR Portable? Sure!

Like to add some unique, high-flying excitement to your portable hamming activities? Take a closer look at OSCAR satellite communications. Many folks dismiss this idea with the assumption it involves fancy gear and a computer-driven antenna system (and that assumption may hold true for the big Phase III satellites). However, there is another side to this story.

I am referring to the small group of low-orbiting and FM-repeating "microsatellites" such as OSCAR 50 and 51. You can talk with other amateurs nationwide—possibly farther—via these repeaters in the sky, and the only equipment you

OSCAR 50	
Uplink (your transmit frequency)	Downlink (your receive frequency)
145.850 MHz	436.795 MHz
OSCAR 51	
Uplink (your transmit frequency)	Downlink (your receive frequency)
145.920 MHz	435.300 MHz

Fig. 1— Uplink/downlink frequency relations for OSCAR 50 and OSCAR 51. Due to Doppler shift, frequencies vary slightly (± 5 kHz) as a satellite approaches and passes your QTH. Storing related frequencies in your rig's adjacent memory positions makes tuning easy.

SAVE BIG ON ANTENNAS, TOWERS & CABLE

TELESCOPING ALUMINUM TUBING

DRAWN 6063-T832	1.250"	\$1.65/ft
.375"	1.375"	\$1.85/ft
.500"	1.500"	\$2.05/ft
.625"	1.625"	\$2.35/ft
.750"	1.750"	\$2.60/ft
.875"	1.875"	\$2.85/ft
1.000	2.000"	\$3.10/ft
1.125	2.125"	\$3.60/ft

EXTRUDED 6061-T6	.188" rod	\$.35/ft
.250" rod	4"x.375" bar	\$6.50/ft
2"x.125"	2"x.250"	\$8.00/ft

6' OR 12' LENGTHS. 6' LENGTHS SHIP UPS.

COMET ANTENNAS

GP3, 2m/70cm Vertical	\$99
GP6, 2m/70cm Vertical	\$149
GP9 2m/70cm Vertical	\$189
GP15, 6m/2m/70cm Vertical	\$159
GP98, 2m/70cm/23cm Vertical	\$189

DIAMOND ANTENNAS

X50A, 2m/70cm Vertical	\$109
X200A, 2m/70cm Vertical	\$149
X510MA 2m/70cm Vertical	\$195
X500HNA 2m/70cm Vertical	\$259
X700HNA 2m/70cm Vertical	\$399
V2000A 6m/2m/70cm Vertical	\$169

M2 VHF/UHF ANTENNAS

6M5X/6M7JHV	\$219/279
6M2WLC/6M9KHW	\$499/539
2M4/2M7/2M9	\$105/115/135
2M12/2M5WL	\$179/219
2M5-440XP, 2m/70cm	\$195
440-470-5W/420-450-11	\$149/105
432-9WL/432-13WLA	\$189/259
440-18/440-21ATV	\$135/159

M2 SATELLITE ANTENNAS

2MCP14/2MCP22	\$179/259
436CP30/436CP42UG	\$259/299

CALL FOR MORE IN-STOCK M2 ITEMS.

HYGAIN ANTENNAS

AV18HT Hightower	\$739
DIS71/72	\$269/569
TH3JRS/TH3MK4	\$319/399
TH5MK2/TH2MK3	\$849/319
TH7DX/TH11DX	\$749/995

MFI

259B/269, Analyzers	\$219/299
948/949E, Tuners	\$119/139
969, HF-6m Tuner	\$169
986, 3kW Tuner	\$289
989D, Deluxe 3kW Tuner	\$309
991/993 Autotuners	\$199/229

ANTENNA ROTATORS

M2 OR-2800PDX	\$1279
Hygain HAM IV	\$499
Hygain T2X Tailtwister	\$569
Yaesu G-450A	\$249
Yaesu G-800SA/G-800DXA	\$329/409
G-1000DXA	\$499
Yaesu G-2800SDX	\$1089
Yaesu G-550	\$299
Yaesu G-5500	\$599

ROTATOR CABLE

R62 (#18), HD 6 conductor	\$.35/ft.
R81/82/84, 8 cond.	\$.29/ft./ .45/ft./ .89/ft.

COAX CABLE

RG-213/U, (#8267 Equiv.)	\$.45/ft
RG-8X, Mini RG-8 Foam	\$.25/ft
RG-213/U Jumpers	Please Call
RG-8X Jumpers	Please Call

CALL FOR MORE COAX/CONNECTORS.

TIMES MICROWAVE LMR® COAX

LMR-400	\$.59/ft
LMR-400DB Direct Bury	\$.74/ft
LMR-400 Ultraflex	\$.89/ft
LMR-600	\$1.19/ft
LMR600 Ultraflex	\$1.95/ft

CALL FOR MORE SIZES & CONNECTORS.

TOWER HARDWARE

3/8"EE/EJ Turnbuckle	\$15/16
1/2"x9"EE/EJ Turnbuckle	\$20/21
1/2"x12"EE/EJ Turnbuckle	\$23/24
3/16"/1/4" Big Grips	\$5/6
3/16"EHS-500'/1/4"EHS-500'	\$119/139

PLEASE CALL FOR MORE HARDWARE.

HIGH CARBON STEEL MASTS

5 FT x .12" / 5 FT x .18"	\$35/59
11 FT x .12" / .18" / .25"	\$80/139/179
14 FT x .12" / 16 FT x .18"	\$109/179
19 FT x .12" / 21 FT x .18"	\$129/235
22 FT x .25" / 24 FT x .25"	\$349/379

PHILLYSTRAN GUY CABLE

HPTG1200I	\$.45/ft
1200 END KIT	\$3.60
HPTG2100I	\$.59/ft
PLP2738 Big Grip (2100)	\$8.00
HPTG4000I	\$.89/ft
PLP2739 Big Grip (4000)	\$10.00
HPTG6700I	\$1.29/ft
PLP2755 Big Grip (6700)	\$16.00
HPTG11200	\$1.89/ft
PLP2758 Big Grip (11200)	\$19.00

PLEASE CALL FOR HELP SELECTING THE PHILLYSTRAN SIZE FOR YOUR PROJECT.

ROHN TOWER

25G/45G/55G	\$99/209/259
25AG2/25AG3/25AG4	\$119/119/129
45AG2/45AG4	\$229/249
AS25G/AS455G	\$49/109
BPC25G/BPC45G/BPC55G ...	\$89/119/129
BPL25G/BPL45G/BPL55G ...	\$99/129/149
GA25GD/GA45GD/GA55GD ...	\$79/139/159
GAR30/GAS604	\$39/29
SB25G/45/55	\$59/109/129
SB25G5/SBH25G	\$79/159
TB3/TB4	\$139/179

PLEASE CALL FOR MORE ROHN ITEMS.

TRYLON "TITAN" TOWERS

SELF-SUPPORTING STEEL TOWERS

T200-64 64', 15 square feet	\$1389
T200-72 72', 15 square feet	\$1679
T200-80 80', 15 square feet	\$1999
T200-88 88', 15 square feet	\$2349
T200-96 96', 15 square feet	\$2769
T300-88 88', 22 square feet	\$2679
T400-80 80', 34 square feet	\$2589
T500-72 72', 45 square feet	\$2179
T600-64 64', 60 square feet	\$2339
T700-56 56', 80 square feet	\$1889

MORE TRYLON TOWERS AVAILABLE.

UNIVERSAL ALUMINUM TOWERS

4-40'/50'/60'	\$569/809/1149
7-50'/60'/70'	\$1039/1499/1969
9-40'/50'/60'	\$809/1149/1619
12-30'/40'	\$599/949
15-40'/50'	\$1069/1529
16-60'/80'	\$2219/3389
21-50'/60'/70'	\$1759/2339/2929
23-30'/40'	\$959/1419
35-40'	\$1649

BOLD IN PART NUMBER SHOWS WIND LOAD CAPACITY. SHIPS DIRECT FROM THE FACTORY TO SAVE YOU MONEY!

US TOWER CRANK-UPS

MA40/MA550	\$1099/1699
MA770/MA850	\$2799/4349
TMM433SS/HD	\$1479/1789
TMM541SS	\$1939
TX438, 38' Crankup Tower	\$1379
TX455, 55' Crankup Tower	\$1899
TX472, 72' Crankup Tower	\$3139
TX489MDPL, 89' Motorized HD	\$8239
HDX538, 38' Extra Heavy Duty	\$1649
HDX555, 55' Extra Heavy Duty	\$2889
HDX572MDPL 72' Motorized	\$7549

SHIPPED DIRECT TO SAVE YOU MONEY!

WEEKDAY HOURS:
9 AM-5 PM CENTRAL

SATURDAY HOURS:
9 AM-12 NOON CENTRAL

CREDIT CARDS:
M/C, VISA, DISCOVER

TEXAS TOWERS

A Division of Texas RF Distributors, Inc. • 1108 Summit Avenue, Suite #4 • Plano, TX 75074

(800) 272-3467

LOCAL CALLS:
(972) 422-7306

EMAIL ADDRESS:
sales@texastowers.com

INTERNET ADDRESS:
www.texastowers.com

GREAT US TOWER CRANK-UP DEALS!

TX SERIES CRANK-UP TOWERS

- Handles 35 square feet of antenna load at 50 MPH, 14.75 square feet at 70 MPH.
- All models supplied with hinged T-base, anchor bolts, hand winch (except motor drive models), top plate, and rotor plate.
- MDP & MDPL models include motor drive
- Options include coax arms, raising fixtures, masts, motor drives, and more!

Now shipping from CA for west coast customers, and KS for east coast and midwest customers, to reduce freight cost!

TX SERIES HEAVY DUTY CRANK-UP TOWERS

TOWER MODEL	MAX. HT.	MIN. HT.	WT. (LBS.)	LIST PRICE	SALE PRICE
TX-438	38'	21'6"	355	\$1,523	\$1,379
TX-455	55'	22'	670	\$2,107	\$1,899
TX-472	72'	22'8"	1040	\$3,462	\$3,139
TX-472MDP	72'	22'8"	1210	\$5,571	\$5,049
TX-489MDPL	89'	23'4"	1800	\$9,034	\$8,239



HDX SERIES CRANK-UP TOWERS

- Heavy duty, handles 44.7 square feet of antenna load at 50 MPH, 35 square feet at 70 MPH.
- All models supplied with hinged T-base, anchor bolts, hand winch (except motor drive models), top plate, and rotor plate.
- MDPL models include motor drive
- Options include coax arms, raising fixtures, masts, motor drives, and more!

Now shipping from CA for west coast customers, and KS for east coast and midwest customers, to reduce freight cost!

HDX SERIES HEAVY DUTY CRANK-UP TOWERS

TOWER MODEL	MAX. HT.	MIN. HT.	WT. (LBS.)	LIST PRICE	SALE PRICE
HDX-538	38'	21'6"	600	\$1,807	\$1,649
HDX-555	55'	22'	870	\$3,162	\$2,889
HDX-572MDPL	72'	22'8"	1600	\$8,281	\$7,549
HDX-589MDPL	89'	23'8"	2440	\$10,841	\$9,899
HDX-689MDPL	89'	23'8"	3450	\$20,943	\$19,129
HDX-5106MDPL	106'	24'8"	3700	\$22,791	\$20,799



MA SERIES CRANK-UP MASTS

- Handles up to 22 square feet of antenna load. (See chart below)
- MDP models include motor drive.
- All models supplied with anchor bolts, load-actuated hand winch, and house bracket.
- Options include coax arms, raising fixtures, motor drives, self-supporting and rotator bases, remote control panel, and more!

Now shipping from CA for west coast customers, and KS for east coast and midwest customers, to reduce freight cost!

MA SERIES CRANK-UP MASTS

MAST MODEL	MAX. HT.	MIN. HT.	WT. (LBS.)	50 MPH (sq. ft.)	70 MPH (sq. ft.)	LIST PRICE	SALE PRICE
MA-40	40'	21'6"	242	16.5	6.8	\$1,209	\$1,099
MA-550	55'	22'1"	435	22	9	\$1,875	\$1,699
MA-550MDP	55'	22'1"	620	22	9	\$3,584	\$3,249
MA-770	71'	22'10"	645	15.5	5.5	\$3,091	\$2,799
MA-770MDP	71'	22'10"	830	15.5	5.5	\$4,890	\$4,449
MA-850MDP	85'	23'6"	1128	15.3	6.3	\$6,591	\$5,999



TMM SERIES COMPACT CRANK-UP TOWERS

- Handles 20 square feet of antenna load at 50 MPH, 8 square feet at 70 MPH.
- Compact design is great for areas with tower restrictions, or where a less intrusive installation is desirable.
- All models supplied with hinged T-base, anchor bolts, load-actuated hand winch, 8' steel mast, top plate, and rotor plate.
- Options include coax arms, raising fixtures, motor drives, thrust bearing, remote control panel, and more!

Now shipping from CA for west coast customers, and KS for east coast and midwest customers, to reduce freight cost!

TMM SERIES COMPACT CRANK-UP TOWERS

TOWER MODEL	MAX. HT.	MIN. HT.	WT. (LBS.)	LIST PRICE	SALE PRICE
TMM-433SS	33'	11'4"	315	\$1,626	\$1,479
TMM-433HD	33'	11'4"	400	\$1,970	\$1,789
TMM-541SS	41'	12'	430	\$2,135	\$1,939



WEEKDAY HOURS:
9 AM-5 PM CST

SATURDAY HOURS:
9 AM-12 NOON CST

CREDIT CARDS:
M/C, VISA, DISCOVER

TEXAS TOWERS

A Division of Texas RF Distributors, Inc. • 1108 Summit Avenue, Suite #4 • Plano, TX 75074

(800) 272-3467

LOCAL CALLS:
(972) 422-7306

EMAIL ADDRESS:
sales@texastowers.com

INTERNET ADDRESS:
www.texastowers.com

need is a low-power, full-duplex 2-meter/70-cm mobile or handheld transceiver and a small-gain-type antenna. Satellites are also very precise in their orbits, so with the aid of orbital data and frequency relation charts, you know without any guesswork exactly when one will be in range of your QTH and what frequencies to tune. You just switch on your rig a couple of minutes before pass time, operate like a bandit for 15 to 20 minutes (the length of a typical pass), and then switch off the rig and return to other activities. It is a treat.

An FM-repeating "microsat" typically operates on a seldom-used pair of frequencies or an FM "channel" just like an earth-based FM repeater, and you access it with a full-duplex 2-meter/70-cm transceiver just like you would access a regular crossband repeater. "Full duplex" means the rig can transmit on one (either) band while simultaneously receiving on the other band. This feature is usually included in the more deluxe or top-of-the-line FM dual-banders such as ICOM's IC-2720, Yaesu's FT-8900, Alinco's DR-605, and Kenwood's TMD7000, but there are some easy-to-implement alternatives here.

If you have one of the popular HF/VHF/UHF mini mobile transceivers such as ICOM's IC-706, Yaesu's FT-897, or a little FT-817 and a 2-meter (or 70-cm) FM mobile or handheld rig, you can use the combo as a satellite station. That's because it gives you the ability to transmit and receive on 2 meters and 70 cm at the same time so you will know when and how well your signal is being relayed via satellite, plus you can tweak your antenna's angle of direction every three or four minutes.

Some folks have communicated through an FM repeating microsat while using only a basic 2-meter/70-cm talkie (in fact, EB4DKA worked ON5NY via OSCAR 50 with a little 300-mw Alinco DJ-C5), but that is the exception rather than the

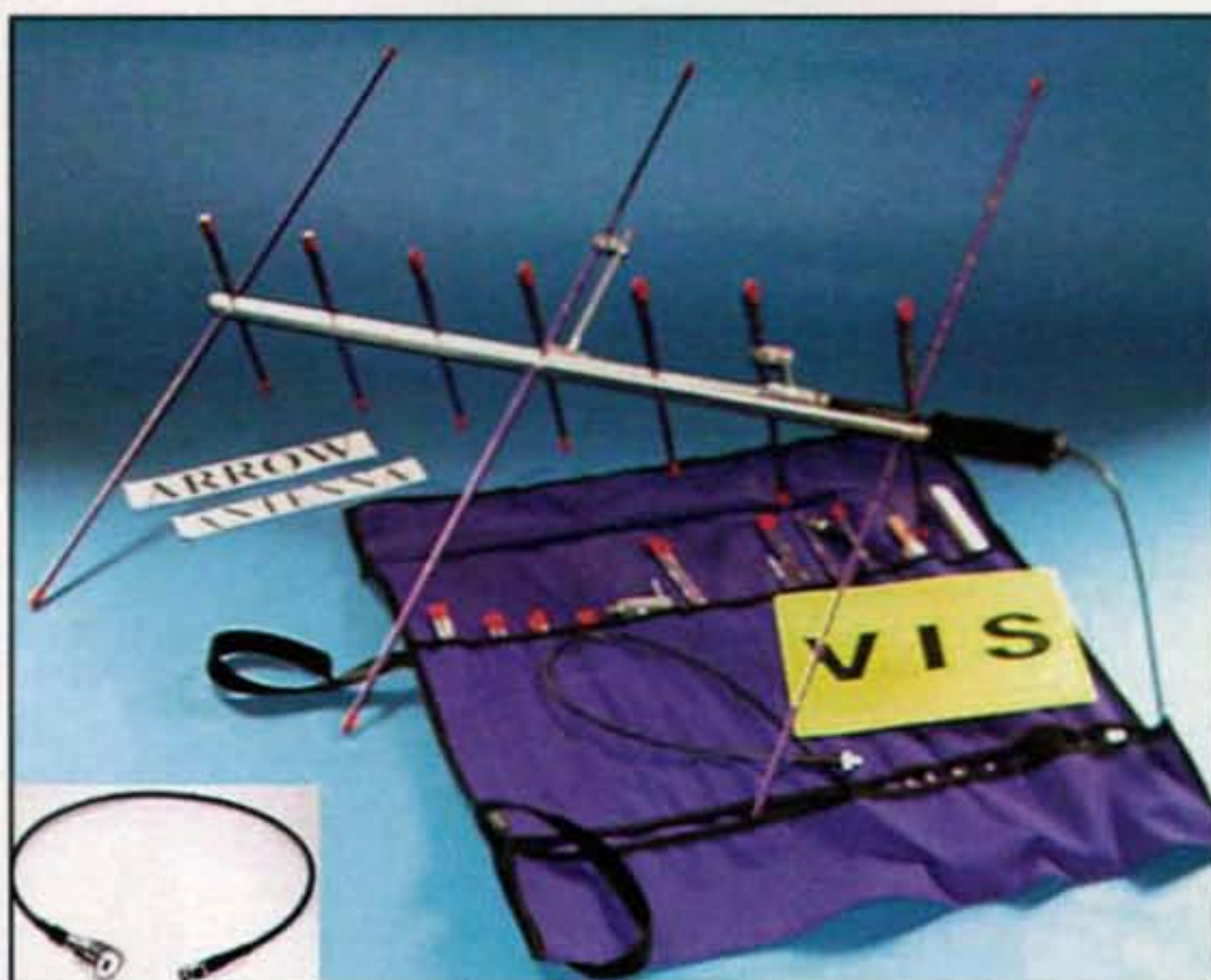


Photo E— The unique Arrow portable 2-meter/70-cm antenna stores in its own carrying bag and goes together in a flash for on-the-spot satellite operation. The adapter cables on the left interface the antenna with FM talkies using SMA connectors. Antennas and adapter cables are available from VIS Amateur Supply, 1-800-OKK-Hams.

If you enjoy radio communications you'll love....

POPULAR COMMUNICATIONS

The World's most authoritative monthly magazine for Shortwave Listening and Scanner Monitoring. Read by more active listeners world-wide.

Get fast home delivery of **Popular Communications** and save \$30.93 a year over the newsstand price. Save even more on 2 or 3 year subs.

- ☐ 1 year - 12 issues **\$28.95**
(Save \$30.93)
- ☐ 2 years - 24 issues **\$51.95**
(Save \$67.81)
- ☐ 3 years - 36 issues **\$74.95**
(Save \$104.69)

Canada/Mexico—One year \$38.95, two years \$71.95, three years \$104.95; Foreign Air Post—one year \$48.95, two years \$91.95, three years \$134.95, Payable in US dollars only



SAVE UP TO 58%

SUBSCRIBE TODAY!

Mail orders to:
**Popular Communications, 25 Newbridge Rd,
Hicksville, NY 11801
FAX 516-681-2926**



Photo F— The Arrow antenna assembled and mounted to a regular camera tripod for easy, hands-free operation (mounting holes are predrilled in the antenna boom). The antenna has three elements for 2 meters and seven elements for 70 cm and includes a (removable) diplexer. It is available from <www.visradio.com>.

rule. The microsats orbit only a few hundred miles above the Earth (it's really not far, and it's also straight line of sight), so just a few watts of transmit power and a reasonably sensitive receiver fill rig requirements.

Antenna-wise, a breakdown dual-band beam you can carry and set up in a flash is an all-around good bet. One of the most impressive antennas in that category is the Arrow shown in photos E and F (available from VIS Amateur Supply, P.O. Box 284, Coffeetown, AL 36524; telephone 1-800-655-4267 or via <www.visradio.com>). The Arrow has three elements for 2 meters and seven elements for 70 cm on a 38-inch long break-down boom and a foam grip at the rear for handheld use. It also mounts to a camera tripod for stand-alone use. The beam exhibits respectable forward gain plus good front-to-back and front-to-side ratios to minimize "surprise intermod," which can happen when operating portable in a strange location near commercial towers. Nice!

As previously mentioned, communicating via an FM-repeating microsat involves knowing what frequencies to tune on your receiver and transmitter plus the exact time a satellite treks across the skies near your QTH (its orbital data). As a helpful getting-started aid, a frequency chart for OSCAR 50 and 51 is shown in fig. 1. You will need to make minor adjustments in both your antenna's position and uplink and downlink frequencies (± 5 kHz) to compensate for Doppler shift and "stay in the repeater" during a pass, but that is half the fun!

The microsats typically make two or three passes in range of your QTH each day, and orbital tracking software, changes in operating schedules, news about new satellites, and more is available at "satellite headquarters": <www.amsat.org>. Check it out, join AMSAT (support your local microsat), and become a satellite guru! Also, listen for late-breaking satellite news on the AMSAT net that meets Sundays at 1900 UTC on 14.282 MHz and take a look at <www.heaves-above.com> for daily satellite-pass prediction times.

Once familiar with the general concept of working via satellite, you can start on fine-tuning your technique for success. Listen with an earphone so you can hear the satellite as soon as it moves within range, plus monitor for your own satellite relayed signal (which may be ± 5 kHz of the center frequency, due to Doppler shift) without transmit/receive feedback. Point your antenna in the satellite's general direction and then reposition it as necessary to continue

working through the satellite during a pass. Time your calls so you can be heard during "overs" and keep your transmissions short so others can enjoy equal time on the satellite (where each and every QSO is special). Bear in mind also that the prime time for spanning the longest distance is when the satellite is on your far horizon—the minutes when you first hear the satellite and right before it drops out of range.

Describing all the fine details of portable satellite operation is not possible here, but with any luck this intro-

duction will inspire you to investigate it further (and isn't that the purpose of this "World of Ideas" column?). Do it! Get cookin'! Have fun with amateur radio!

Conclusion

Once again we have filled allocated space and must bow out for another month. Our efforts are well worthwhile if they kindle your enthusiasm to expand your horizons and try something new—and that's easy with a world-class hobby/pursuit such as amateur radio!

73, Dave, K4TWJ

RIGblasters

The original sound card interface for all ham sound card programs, any radio, any computer and all hams.

Any RIGblaster will work with over 2000 radios, over 100 programs and over 23 operating modes!



CBA II Computerized Battery Analyzer

Discover true battery performance! The first easy to use battery lab tester. Test any type of battery, NiCad, LiPoly, Lead Acid etc. USB interface with Windows® software. Measure and graph battery capacity with a constant current discharge of up to 40 amps or 150 watts. Graphs may be overlaid saved and printed. Test label printouts too.

New CBA II with 12 bit resolution 0-3 Amps.



RIGrunners

The original Powerpole DC power panels. No equal in quality or performance. Four models to choose from. Make your 12 VDC wiring neat, safe, and convenient now.



PWRgates

Emergency backup power systems to safely have both a sealed lead-acid battery and a 13.8 volt power supply always connected to your station. Two models, one with a maintenance charger, and our new model PG40S, Super PWRgate, with a full four-stage selectable 1 to 10 amp fast charger. Gel/AGM batteries available from WMR for great prices.



PWRcrimp

Powerpole crimp tool that perfectly crimps 15, 30 and 45 Amp contacts. Ratcheted with an excellent contact positioner.



www.westmountainradio.com

West Mountain Radio

18 Sheehan Ave., Norwalk, CT 06854 (203) 853 8080

Dealer inquiries invited

Dayton from the Mobile Perspective

The annual Dayton Hamvention® is a challenge to absorb and process. Each year I'm blown away by the many different ways we enjoy this hobby we call ham radio, from micro-size transmitters to full-legal-limit amplifiers, from CW to digital, and everything in between.

Not surprising is the wide array of mobile equipment, and that includes the latest mobile rigs offered by the manufacturers, the many different choices in antenna systems, used gear from the flea market, and of course the potpourri of mobile installations and antennas found in the parking fields that surround the Hara Arena complex. Just by looking around you can learn a lot and see some very creative solutions to the challenges of operating mobile.

Kudos to GM

Once again this year General Motors had a support team with a display inside Hara. I'm always impressed with their willingness to discuss the individual challenges of getting a new car to peacefully co-exist with ham radio gear.

This year the GM team brought one of the company's new Chevrolet Cobalt models complete with a radio installation, including an HF antenna mount (photo A). They even had a mirror under the rear bumper so you could see the mounting technique used in installing a safe, secure HF antenna installation. GM was also handing out its printed installation guidelines, which include detailed diagrams of the recommended practices to employ when routing the cables through most GM vehicles. It's great to see GM continue its support for ham radio through its technical efforts and by appearing at the Hamvention® each year.

Over the Top?

Dayton also provides opportunities to study some of the more enthusiastic efforts made in mobile communications. Check out the Virginia Red Cross Emergency Communications unit in photo B. It's almost hard to tell there's a rather substantial truck beneath all those antennas! The vehicle looked more like a NASA robotic probe ready to explore a distant planet. All kidding aside, the unit appears to be very well constructed and will serve its users well when reliable communications are needed in a time of disaster.

Equally impressive is the DX Engineering HumVee® (photo C), which also provides a steady platform for a bevy of antennas. I was snooping around prior to the opening of the show when I took the photo, so I was not able to ask questions



Photo A— Chevrolet's new Cobalt may be small, but you can still put big signals on the air from this new entry in the firm's product lineup.

about the rolling station. Unfortunately, the website has no info on this very intriguing vehicle.

At the other end of the size spectrum is the touring motorcycle operated by Robert, KC3VO (photo D). Someday we'll have to convince him that he just has to make a commitment to the hobby! Robert's installation is a great display of what is possible when you really think through the design and operation of a mobile station.

Where's the Battery?

The Chevy Cobalt is an example of a growing trend in new vehicles. The battery is not located in the engine compartment; in the Cobalt it's in the trunk. Many other manufacturers are also placing the battery elsewhere, including the trunk, but it may also be found under the rear seat, which is no surprise to those of us who owned "old" Volkswagen Beetles (1950s through '70s vintage).

Attaching accessory leads to a battery is always an exercise in caution and safety, but even more so when the battery is in a place where problems can be a direct threat to passenger safety. I once occupied the driver's position in a towed vehicle, when a carelessly placed tool shorted the electrical system. The vehicle caught fire and I was trapped inside a burning car being towed at 35 mph! It ended okay for me, but not so much the

*5904 Lake Lindero Drive, Agoura Hills, CA 91301
e-mail: <aa6jr@cq-amateur-radio.com>



Photo B— The Virginia Red Cross appears to be ready for anything with its mobile unit. The air mast and satellite dish dominate the view, but many other antennas fill the roof of this great comms vehicle.



Photo C— The DX Engineering Hummer allows the driver to take amateur radio just about anywhere!

car. Therefore, be very careful when connecting radio leads and be sure to fuse them as close to the battery as possible.

Having the battery in the trunk can be a huge benefit for those of us seeking to connect radios. A shorter power cable run to the transceiver reduces voltage drop and other disadvantages, most notably the challenge of routing power leads through the vehicle's firewall. Many of today's mobile transceivers offer the opportunity to mount the control head in the passenger compartment, saving space and keeping the radio safely stored in the trunk away from direct sunlight and perhaps those seeking to "liberate" an "easy target" from a car's interior.

We Have It Pretty Good

Last time in this column I asked for stories from folks who operated the old tube rigs mobile. Thanks to Barry, W1HFN, for sharing the following:

I was first licensed in 1959. One of the guys in the local ham club acquired a pile of old GE tube-type mobiles and converted them to 146.94 simplex. No repeaters around our area then. My first ever mobile rig (1963) was one of those mobiles converted to 2 meters. It had lots of tubes and a 6-volt vibrator power supply. The car was a 1960 Plymouth Valiant with a 12-volt battery. The large transceiver chassis was mounted in the trunk, the control head under the dash, as was the norm in those days. However, in order to get the 6-volt radio to play on 12 volts, two large (I think 200-watt) resistors mounted on ceramic standoffs on an aluminum-foil-covered sheet of plywood were in series with the 12-volt supply. They got real hot when I was transmitting.

My other tube mobile installation was in 1968. I was in the Air Force and had just been transferred from Goose Bay, Labrador to Bergstrom Air Force Base in Austin, Texas. I stopped at my folks QTH in Aberdeen, Maryland for a week en route and bought a brand-new 1968 Volkswagen Karmann Ghia and a Hustler mount with 80-, 40-, and 20-meter resonators. The VW had real chrome bumpers on which you could clamp a mobile antenna mount. The rig was a Swan 240 (100 watts PEP) powered by a Heathkit "solid-state vibrator" power supply. I tried 80, but the ignition noise was too much; 20 worked out the best, so I operated 20 meters from Maryland to Texas and had a great time.

I never used a dynamo-powered rig, but knew lots of guys who

did. I remember reading about a guy who ran a Collins S-Line in the front seat of his Ford station wagon and had the 30S-1 2000-watt linear in the back seat. To power this stuff he towed a generator behind him on a trailer!

Today my 2001 Subaru Forester sports a Kenwood TS-50 and a Mini Tarheel on HF and a Yaesu FT-90 on 2 and 440. No tubes, no dropping resistors, no squealing vibrators. It all works well, but I remember when it wasn't quite so easy.

Thanks, Barry! Your story brings alive a bygone era and reminds us how fortunate we are with today's modern rigs.

Happy and safe mobiling!



Photo D— "You can take it with you" seems to be the message conveyed by KC3VO's Honda Gold Wing, which also functions as a showcase for ham radio gear.

Two's a Couple, 30's a Club!

One of the first things I mention to newly licensed hams is the importance of joining a local radio club. When you become a member of a club, all sorts of wonderful and, yes, sometimes strange things happen to you. This is a good thing. Being a member of a club or group is beneficial in many ways, for the "greenest" newbie and the oldest and most experienced "old timer" alike.

Joining a group means that you can feel comfortable discussing special topics with people who understand what you are talking about. For example, you arrive late to the office on a Tuesday night, after successfully breaking through a big pile-up of stations only a few hours ago on 20 meters to work that island DXpedition. Or, over the weekend you just made the last solder joint and installed the last screw on the cabinet of your latest radio project, and after plugging it in, the unit lit up and worked just like it should the first time around. Or, you just bought that old, but classic receiver you always wanted as a kid and had to out-bid 20 other hams on the online auction to get it. By the same token, you finally sold that old clunker of a radio to someone, making some spending money for a new beam antenna in the process.

How can you explain these events to your non-ham boss or your office cubicle neighbor? Who will be jealous or envious of your success? Who can buy you a beer or pick up the next lunch tab to celebrate with you on these victories? Sometimes not even your spouse will understand why you are so excited.

Being a club member, you can share your excitement with others on the club repeater and mention these strange things at the very next club meeting.

A Sense of Purpose

What about *purpose*? Although I have been a licensed ham for nearly 30 years, I did go through a very long hiatus from ham radio, until I joined the local RACES (Radio Amateur Civil Emergency Service) group a few years ago. Now a lot of my ham radio activities have a *purpose*—to help my community and my neighbors. Remember, though, RACES is not a club *per se*; it is a group of dedicated hams with similar interests in public service and emergency preparedness. That is not to say that we do not have fun, and I think most fellow RACES or ARES (the ARRL's Amateur Radio Emergency Service) people would agree with me.

Many club groups pool their resources and knowledge and come up with interesting projects. For example, there are always people who sound



Photo A— Consider lending your ham radio capabilities to help your community. Although RACES and ARES groups generally are not considered "clubs," they are great places to meet fellow hams with similar interests. Here Mel Goldberg, N6MEL, explains how he sets up his portable station during an emergency communications activation.

noisy on the club repeater, because they may be in a "dead spot" of the repeater's coverage area. One idea is to gather a bunch of members together and come up with a group antenna project, creating a useful station gadget, an opportunity to learn something new and a fun social event.

What about being entertained and presenting a path to learning new things? Most clubs invite guest speakers as part of their meeting programs, and they usually present interesting and informative and sometimes funny stories. Where else can a ham operator listen to a lecture about going to a foreign country to operate ham radio, or have



Photo B— Club meetings are a great place to exchange ideas and network with other hams who do what you like to do. This is a typical San Bernardino Microwave Society (SBMS) meeting, with a focus on microwave radio building and operating.

*16428 Camino Canada Lane, Huntington Beach, CA 92649
e-mail: <kh6wz@cq-amateur-radio.com>

RSGB Books available from



Antenna Topics

by Pat Hawker, G3VA

RSGB, 2002 Ed. 384 pages. This book is a chronological collection of selections of G3VA's words over the years. Hundreds of areas and subjects are covered and many a good idea is included.

Order No. RSAT **\$29.00**



HF Antenna Collection

RSGB, 1st Ed., 1992. 233 pages. A collection of outstanding articles and short pieces which were published in Radio Communication magazine during the period 1968-89. Includes ingenious designs for single element, beam and miniature antennas, as well providing comprehensive information about feeders, tuners, baluns, testing, modeling, and how to erect your antenna safely.

Order: RSHFAC **\$16.00**

IOTA Directory - 11th Edition



Edited by Roger Balister, G3KMA.

RSGB, 2002 Ed., 128 pages. This book is an essential guide to participating in the IOTA (Islands on the Air) program. It contains everything a newcomer needs to know to enjoy collecting or operating from islands for this popular worldwide program.

Order: RSIOTA **\$15.00**

Antenna Toolkit 2

By Joe Carr, K4IPV

RSGB & Newnes, 2002 Ed. 256 pages. A definitive design guide for sending and receiving radio signals. Together with the powerful suite of CD software included with this book, the reader will have a complete solution for constructing or using an antenna; everything but the actual hardware!



Order: RSANTKIT2 **\$40.00**



Practical Projects

Edited by Dr. George Brown, M5ACN. RSGB 2002 Ed, 224 pages. Packed with around 50 "weekend projects," Practical Projects is a book of simple construction projects for the radio amateur and others interested in electronics. Features a wide variety of radio ideas plus other simple electronic designs and a handy "now that I've built it, what do I do with it?" section. Excellent for newcomers or anyone just looking for interesting projects to build.

Order: RSPP **\$19.00**

Low Power Scrapbook

RSGB, © 2001, 320 pages. Choose from dozens of simple transmitter and receiver projects for the HF bands and 6m, including the tiny Oner transmitter and the White Rose Receiver. Ideal for the experimenter or someone who likes the fun of building and operating their own radio equipment.



Order: RSLPS **\$19.00**



The Antenna File

RSGB, ©2001. 288 pages. **\$34.95.**

Order: RSTAF

50 HF antennas, 14 VHF/UHF/SHF antennas, 3 receiving antennas, 6 articles on masts and supports, 9 articles on tuning and measuring, 4 on antenna construction, 5 on design and theory, and 9 Peter Hart antenna reviews. Every band from 73kHz to 2.3GHz!

Order: RSTAF **\$32.00**



The Antenna Experimenter's Guide

RSGB, 2nd Ed, 1996. 160 pages. Takes the guesswork out of adjusting any antenna, home-made or commercial, and makes sure that it's working with maximum efficiency. Describes

RF measuring equipment and its use, constructing your own antenna test range, computer modeling antennas. An invaluable companion for all those who wish to get the best results from antennas!

Order: RSTAEG **\$28.00**



HF Amateur Radio

RSGB, 2002 Ed.

The HF or short wave bands are one of the most interesting areas of amateur radio. This book takes the reader through setting up an efficient amateur radio station, which equipment to choose, installation, and the best antenna for your location and MUCH more.

Order: RSHFAR **\$21.00**

Amateur Radio

Mobile Handbook

RSGB, 2002 Ed., 128 pages. The Amateur Radio Mobile Handbook covers all aspects of this popular part of the hobby. It includes operating techniques, installing equipment in a vehicle and antennas, as well as maritime and even bicycle mobile. This is essential reading if you want to get the most out of your mobile station.



Order: RSARMH **\$21.00**

RSGB Prefix Guide

By Fred Handscombe, G4BWP.

RSGB, 6th Ed., 2003. 48 pages. This book is an excellent tool for the beginner and the experienced hand alike. Designed with a "lay flat" wire binding for ease of use the new "Prefix Guide" is a must for every shack.



Order: RSPFXG **\$13.50**

VHF/UHF Antennas

By Ian Poole, G3YWX

RSGB, 2002 Ed, 128 pages. This great new book investigates the exciting area of VHF and UHF antennas. VHF and UHF bands provide an exciting opportunity for those wishing to experiment, while the antenna sizes at these frequencies do not occupy great amounts of space.



Order No. RSVUANT **\$30.00**

**Order Toll-Free
800-853-9797**

Visit Our Web Site
www.cq-amateur-radio.com

Name Callsign

Street Address

City State Zip

Qty	Item #	Description	Price	Total Price
Shipping and Handling: US and Possessions - Add \$5.00 for the first book, \$2.50 for the second, and \$1 for each additional book. FREE SHIPPING ON ORDERS OVER \$75.00 (merchandise only). Foreign - Calculated by order weight and destination and added to your credit card charge. ALLOW 3 TO 4 WEEKS FOR DELIVERY			Total	

Method of payment ☐ Check ☐ Money Order ☐ Visa ☐ MasterCard ☐ Discover ☐ American Express

Credit Card No. Expiration date



CQ Communications Inc., 25 Newbridge Rd., Hicksville, NY 11801/516-681-2922; Fax 516-681-2926



Photo C— All ham clubs have their own set of radio experts. Here SBMS member Bill Burns, WA6QYR, explains the design nuances of his 10-GHz rig.

someone provide an "insider's tour" of the local television or radio station?

How about socializing? I think you will enjoy your ham radio experience even more if you get out of the house and visit new places and do new things, and most of all, meet new people and make new friends. Getting out and joining a radio club is one great way to do this. Besides, how can you "really do" Field Day without belonging to a club?

Finding a Club

Okay, so now you are beginning to feel a little interested in joining a ham radio club. How does one go about finding one? The telephone directory most likely would *not* be a place to start (very few clubs nowadays have their own phone lines). Today we have the internet, and if you recall the Beginner's Corner column in the April 2004 issue, the search engine is a wonderful tool to start your quest.

Go to the ARRL website <<http://www.arrl.org>> and click on the "Clubs" button on the upper-left of the home page. From Alaska to Wyoming, and everything in between, there must be a radio club or maybe even several clubs for you to join. Plug in your ZIP code, and you should be able to find contact information for the next meeting. Almost all entries have the club or its representative's telephone number, e-mail

address, and website listed. Don't be afraid; give these people a call on the telephone. The folks listed are usually the friendly hand-shaking types you want to hang around with. After all, just about all clubs are constantly looking to recruit or capture more members. (A search on Google or your favorite search engine for "amateur radio club [your county and state]" may turn up additional clubs that are not affiliated with the ARRL.—ed.)

Okay, so now you have information about the club near you. You have done some research on what the club is all about and have found one (or more) clubs that have activities you can do on your own or maybe some activities in which you want to get started. You might even have information on the local ARES or RACES group, too. You have notes on the meeting locations and dates and times. You have directions or have arranged transportation to get to the meeting place. You might have even checked into the group's VHF net as a "visitor" a few times and made some new radio friends.

Now it is time to take the next step—going to a meeting. This experience varies from group to group. The best clubs have someone, an officer or a dedicated individual, who will meet you and make sure you are comfortable at your first meeting. Sometimes you end up in a "cold reception" at your first meeting, but this is rare. Everyone notices a new face at any meeting, and a radio club meeting is no exception. Get to know the group and what they are interested in. I know this is beginning to sound like a "blind date," but this new club experience can be almost the same as a "good date" or a "bad date."

Is This Club Right for You?

Going along with this analogy, you may want to sign up and pay your membership fee immediately, or go to several meetings as a guest to decide if you really want to join the club. Remember, if it is a very active club, you may spend a lot of time with these guys, and sometimes people spend more time at the club than with their families. Be careful about this; make sure there is some "balance" between your ham life and life in general. Of course, this is a highly personal thing,



Photo D— One must not forget the social aspects of any club gathering. It is nice to know there are other people just as dedicated to ham radio—as well having the same eating habits as you!



Photo E— Where else can you get a really neat radio-related gift, complete with radio-related wrapping and decorations? A ham radio club, of course!

and the best bet is to invite your family into this ham radio fold. Going to meetings as a guest for several cycles should not be a problem with any group, unless you always gobble up the last donut during the break. Take some time to get to know these folks, and if something in your gut tells you the group is not for you, it's okay and probably best to follow your instinct. Scratch that group off your list and make plans to try another group.

Like a lot of things in life, there are many sub-sets of groups—in other words, specializations. As a non-ham radio example, when I was a kid I collected stamps from all over the world. Years later I narrowed my stamp collecting to United States Space-Related Plate Block Fours. A good example of a ham radio specialization is the growing number of microwave radio groups, such as the San Bernardino Microwave Society (SBMS).

If you want to combine ham radio with some other activity you enjoy, there is a very good chance that there is a club somewhere to make you feel welcome. The Bicycle Mobile Hams of America (BMHA) is the first group to come to my mind; take a look at its website, listed in the References section. Of course, other "combination clubs" probably exist. It just takes some searching to find them.

There is one more thing I would like to add as a parting comment: In the unlikely event that you cannot find a decent radio club that interests you, you

may want to consider seeking a few fellow non-connected-to-a-radio-club hams and start your own group!

73, Wayne, KH6WZ

References

The American Radio Relay League (ARRL) has an extensive collection of information especially for ham radio clubs as well as ARES and RACES. By the way,

if your club is not on that list, you may want to consider listing your club with the ARRL, since the League's website is one of the best ways to promote your group: <http://www.arrl.org>

The Bicycle Mobile Hams of America (BMHA): <http://www.lafetra.com/bmha>

Microwave Ham Radio: <http://www.ham-radio.com/sbms/>

Huntington Beach RACES: <http://www.hbraces.org>

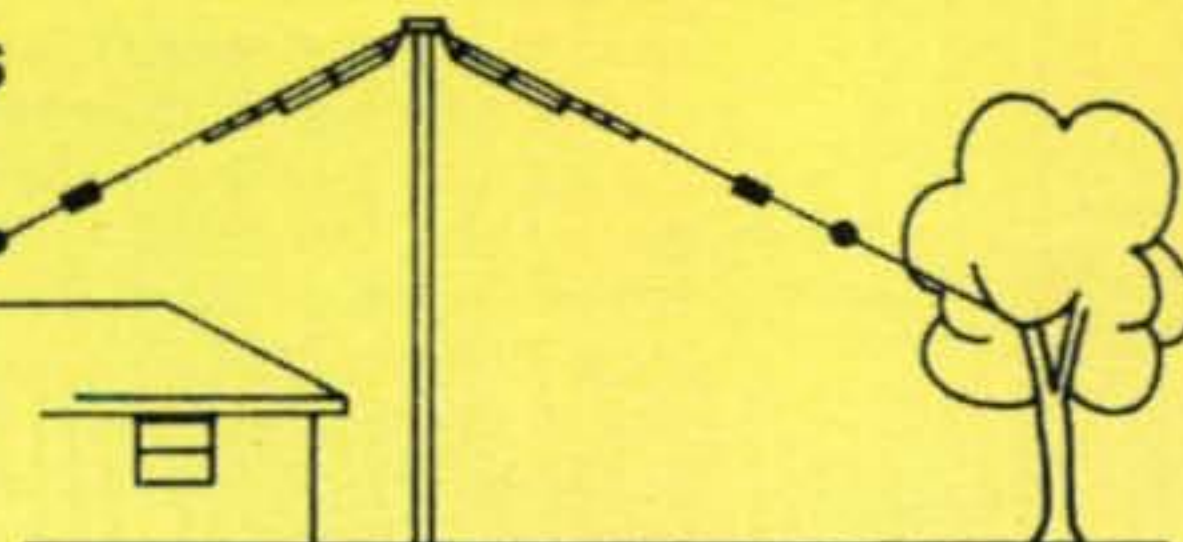
Alpha Delta

Limited Space High Performance Antennas

- STAINLESS STEEL HARDWARE
- FULLY ASSEMBLED
- SEVERE WEATHER RATED COMPONENTS

Model DX-CC shown

- **No-trap design.** Unlike trap antennas, there are no capacitors to break down under high RF voltages, and a tuner may be safely used for multi-band operation if desired.



- **Direct 50 ohm feed.** Tuners usually not required when operating in resonant bands.
- **Full power operation.**
- **Uses "ISO-RES" inductors.**
- **Model DELTA-C center insulator with static protection now used in Alpha-Delta dipoles.**

Model DX-A* 160-80-40 Meter Quarter Wave Twin Sloper

- The premier low frequency DX antenna.
- Combines the tremendous DX firepower of the quarter wave sloper with the wide band width of the half wave dipole.
- One leg is 67', the other 55'. Installs like an inverted-V. Ground return through tower or down-lead.....\$70.00 each

Model DX-B* Single Wire Sloper for 160-80-40-30 Meters

- Perfect for limited space use.
- Only 60' overall length.....\$80.00 each

Model DX-CC "No-Trap" 80-40-20-15-10 Meter Parallel Dipole

- Only 82' overall length.....\$130.00 each

Model DX-DD "No-Trap" 80-40 Meter Single Wire Dipole

- Only 82' overall length.....\$100.00 each

Model DX-EE "No-Trap" 40-20-15-10 Meter Parallel Dipole

- Only 40' overall length.....\$110.00 each

Toll Free Order Line (888) 302-8777 (Add \$8.00 for direct US. orders Exports quoted.)

*Sloper installations have special requirements. See website for details.



ALPHA DELTA COMMUNICATIONS, INC.

AA



Toll free order line (888) 302-8777
www.alphadeltacom.com



P.O. Box 620, Manchester, KY 40962 • (606) 598-2029 • fax (606) 598-4413

Some Digital SSTV

Slow-Scan TV (SSTV) has come a long way since the Robot 1200. Back in those days—which, I'll admit, was quite a few decades after SSTV started—you had to buy an SSTV scan converter, and it would grab an image from a videotape or camera and send it out on radio. If you were lucky, the other station would receive a grainy, low-resolution image after a minute or two of reception. Video noise, color shifts, and just poor quality were common. In fact, it was almost unheard of to receive a perfect image.

Many years ago, before I had earned my Novice license, there was an incident that cemented my desire to be a ham. I was working at a major consumer electronics company with Ted Beauchamp, KA2USU, who would later turn into my Elmer. It seems the space shuttle was equipped for SSTV and they were going to be passing directly over New Jersey one fine Saturday. The company radio club found the funds to buy a Robot 1200, and a station was put together. My job was to point the antenna at where we believed the shuttle was going to be. Downstairs in the company auditorium we had a crowd of Boy Scouts, and even a local TV news crew.

Alas, the contact was a bust. We thought we heard the shuttle, and even sent an image in the blind, but in all likelihood they never saw it. The sad part is, we (the engineering team at this company) actually had a piece of hardware on that shuttle, a tiny color TV receiver that used a regu-

lar (but tiny) CRT picture tube. NASA wanted us to rework the consumer TV product so it could meet space ratings, just so they could do SSTV from space. We spent months making up two examples, with round after round of testing, finally shipping to Houston shortly before the mission.

Getting involved with that project was my first real involvement with amateur radio that I could relate to. I'd sat with friends before as they listened to CW, but without understanding it, no spark came of it. But this—television—was cool. I was hooked. Sadly, I could never afford a Robot scan convert-

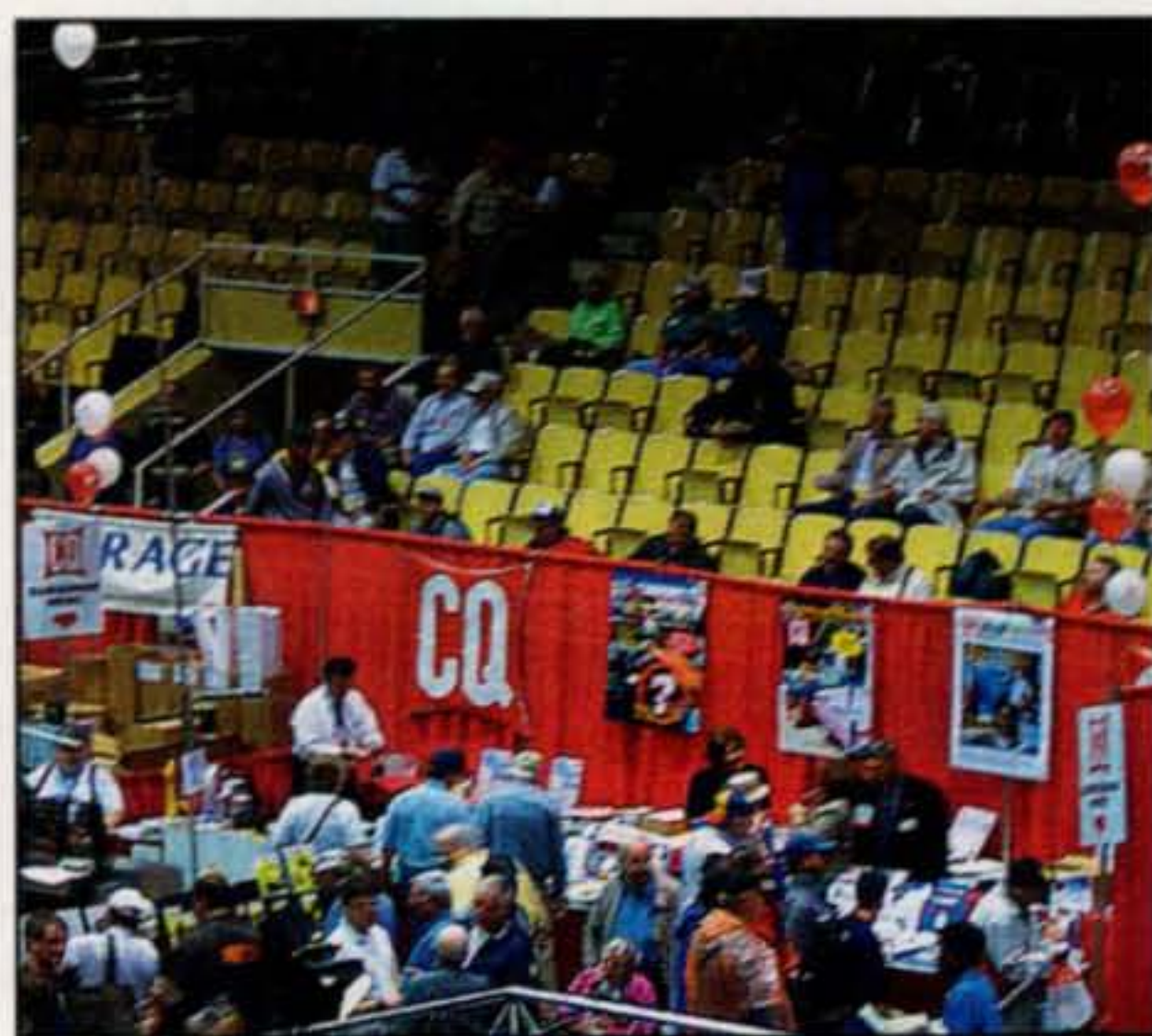


Fig. 1— The original image (about 250 kB) of the CQ booth at Dayton 2003. I chose this image because of the level of detail, since it will really give the compression software a workout.



Fig. 2— The same image as in fig. 1, but compressed to a 25-kB JP2 file using the JP2 utility included with DIGTRX. At this compression level (only 10% of the size of the original) the difference in quality is hardly noticeable, with just a few jaggly artifacts here and there. The image has also been reduced to 400 × 300 pixels.



Fig. 3— The same image as in fig. 1, but compressed to under 2.5 kB—about 1% of the original file size! This image is noticeably compressed, with considerable loss of detail, but it is still recognizable. This file would take about 40 seconds to transmit with 40% redundancy, which would be used on a very noisy channel.

er and so ended up getting more involved with packet and all things digital.

Last time I related the story of how a message on the HSMM reflector (about a mystery signal that turned out to be a SCAMP test) led me to DIGTRX, a digital SSTV application for your computer sound card. This month we'll take a closer look at that application and what I've learned about it. *Disclaimer:* I've found a lot more activity using a different, incompatible application called HamPal. It's the same basic idea, though.

DIGTRX

The first thing is that this ain't your father's SSTV. Gone are the noise and distortion; either the image is perfect or you get nothing. No in-between here. The second thing is that image-compression techniques have come quite a ways, allowing some amazing images to be sent on very low-capacity channels. For example, take a look at figs. 1, 2, and 3. It's pretty amazing stuff (but please be sure to read the captions to understand the differences in picture quality). Last but not least, the software isn't just for image files. Any digital file can be sent, regardless of format—.EXE, .ZIP, .TXT, whatever, up to 64 kB in size. Of course, you should expect a large file to take quite some time to transfer, since the channel capacity is relatively low, a few hundred bytes per second. The application has a means of splitting up large files for better transfer and decoding efficiency.

The first logical step is to download the software and install it on your shack computer. Since it's doing some fairly complex DSP, a fairly modern computer is required. The older version of DIGTRX (2.14D) is somewhat less demanding, able to run slowly on a 300-MHz Pentium with Windows® 95 or above, while the latest version (3.11 as of this writing) requires Windows® XP or 2000+SP4 and a Pentium 4 processor in the GHz speed class.

If you have the hardware, the newer version is well worth it, since it is HamDRM compatible. In case you aren't a regular reader, DRM stands for Digital Radio Mondiale, a new standard for digital shortwave broadcasting (see <www.drm.org>). Ham DRM is the amateur radio adaptation, able to fit inside a 3-kHz HF bandwidth, a very cool mode to experiment with. I wrote about that nearly two years ago, when I reported the first Amateur Digital Voice contact across the Atlantic, using something very similar to HamDRM.

For the older version, go to <http://planeta.terra.com.br/lazer/py4zbz/hds

MOBILE MOUNTS

Data To Go - Safe & Secure



Unique, patented,
modular mobile mounting systems!

Allows almost any communication or data device to be mounted where you want in most vehicles including aircraft!

Available for:

- | | | | |
|-------------|---------|---------|--------|
| •Laptops | •Cell | •Radio | •GPS |
| •Blackberry | •Phones | •Nextel | •PDA's |

Now Available! Power Port Mounts

•Holds, Secures,
Runs device-and Charges Battery



Phone: 516-496-9520 Fax: 516-496-9523

Website: ebatterytech.com

Toll-Free 800-442-4275

ALL-IN-ONE

USB and Sound Card micro KEYER Multi Mode Interface

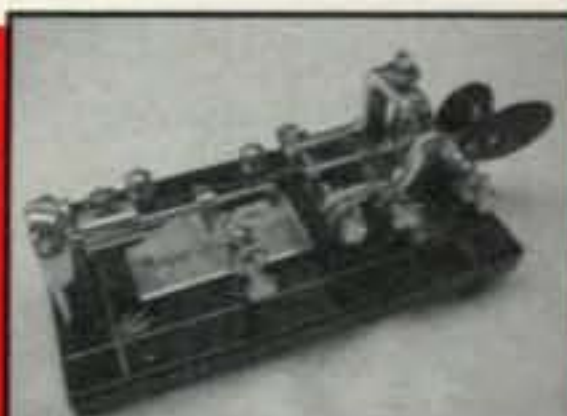
- No COM or LPT ports required, uses just one USB port and Sound Card
- Operate CW, SSB, PSK31, RTTY, SSTV, EchoLink and more!
- Integrated computer control port for all modern transceivers
- Unique MIC <-> Sound Card <-> RADIO audio switching
- Complete ground isolation between computer and radio
- Includes superior CW WinKey chip with CW memories
- FSK RTTY output, and Keying Buffer for Amplifiers

www.microHAM.com

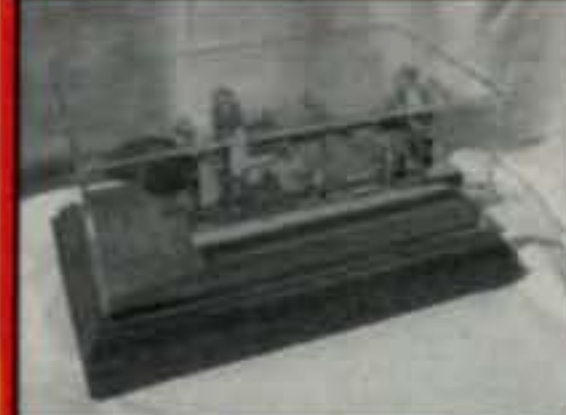


A CQ Advertiser
Since 1947
AMERICAN MADE

VIBROPLEX®



100th ANNIVERSARY ORIGINAL



DISPLAY CASE



CHROME WARRIOR

New from Vibroplex...

100TH ANNIVERSARY ORIGINAL BUG 1904-2004, gold leaf design on base, special serial number plate....CHROME WARRIOR, deluxe version of Code Warrior Jr., chrome base, logo and serial number on center block... DISPLAY CASE, exotic hardwood, plexiglass cover, "Logo items make great gifts!"

The Vibroplex Company, Inc., 11 Midtown Park, E., Mobile, AL 36606

1-800-840-8873 FAX 1-251-476-0465 email: catalog@vibroplex.com

Call for Current Catalog • Mastercard, Visa and Amex accepted • Dealers wanted outside the US. Call or FAX

CARRYING "EXCESS EQUIPMENT?"



DONATE YOUR RADIO

Turn your excess Ham Radios and related items into a tax break for you and learning tool for kids.

Donate your radio or related gear to an IRS approved 501 (c)(3) charity. Get the tax credit and help a worthy cause.

Equipment picked up anywhere or shipping arranged. Radios you can write off - kids you can't.

Call (516) 674-4072
FAX (516) 674-9600
e-mail: crew@wb2jkj.org
www.wb2jkj.org



THE RADIO CLUB OF
JUNIOR HIGH SCHOOL 22
P.O. Box 1052
New York, NY 10002
*Bringing Communication to
Education Since 1980*



Fig. 4— The DIGTRX main window shown transmitting the CQ booth image on the right back to myself through an audio loopback. I had just sent and received the cute photo of Bugs Liberty, a 3-kB file that took 60 seconds to transmit. Above the waterfall display and below the spectrum scope are two red dots (between the greens, which mark the space between carriers) that are used to carefully tune in the signal.

stv/DIGTRX214Dsetup.exe>, which should start downloading the installation file immediately. For the newer version, go to <<http://paginas.terra.com.br/lazer/py4zbz/hdsstv/HamDRM.htm>> and look for the download link. Note that for most pages on Roland, PY4ZBZ's website the top half is in Portuguese and the bottom half is in English, so scroll down if necessary. I also highly recommend carefully reading the other SSTV pages on the site, with links to about a dozen different analog and digital SSTV applications, along with helpful information about getting on the air. The home page is at <<http://paginas.terra.com.br/lazer/py4zbz/index.htm>>, and the SSTV link is right near the top.

Since I have an older computer, running Windows® 98, I am forced to use the older version software. Sometime soon I'll upgrade (this one is from the last century), but for now I'll have to live with it. Anyway, that means I can only write from experience for the older version, but since the installation consists of running the downloaded .EXE file and following the simple on-screen instructions, I have no reason to believe that the newer version is much different. In other words, installation was very simple.

Configuration was just as simple: Set your callsign, configure your COM port to control PTT (DIGTRX uses the same

sound card interface as other digital applications like DigiPan), and set the TX audio level. The included Help file (in English, French, and Portuguese) is a must-read, clearly explaining the procedures to be followed. Don't waste your time trying to get on the air without adjusting, as it just won't work.

Pick a file to transmit and run it through the built-in JP2 encoder, which is a much more aggressive compression system than JPEG, achieving unbelievable compression rates on most files with acceptable quality, as shown in fig. 1, 2, and 3. Not all images lend themselves to such compression, so don't be afraid to use other formats, such as GIF or PNG. In any case, you'll want to keep your file size under about 5 kilobytes, which takes about a minute to send with 20% redundancy.

Speaking of redundancy, you can select a redundancy level between 10 and 70%. The greater the redundancy, the better the chances of a file getting through undamaged. That means when there is significant noise on the channel, pick a higher redundancy. Even though the transmission time is increased, remember the all-or-nothing characteristics of this mode: If the file gets damaged, it's lost—almost.

That's where the redundancy comes in. The application can correct many errors in the received file, all by itself.

Like many digital applications, and this is the beauty of digital, the data is encoded so that some errors can be detected and corrected. Once a file is received, it is then decoded. Decoding time is not only dependent upon the processor speed of your computer, but also the number of errors in the received data; more errors means more time. Of course, there comes a point at which you just can't recover the bad data, and so for that you have another option.

There is a nifty feature called Bad Block Recovery, or BBR. If a file is received with errors, a single click sends a BBR, and the other station automatically resends the message blocks that were received incorrectly, much like a fill request in NTS (National Traffic System) messages. That way a file with a few uncorrectable errors can be recovered without having to retransmit the whole thing. This is especially helpful for large files, since only a small portion of the file needs to be retransmitted.

Anyway, back to getting on the air. I've found a number of stations around 7173 kHz at about noon each day. Some of them use DIGTRX, while others use a different application called HamPal. Stations come on frequency and announce themselves, kind of round-robin style, and send images to one another. Here I ran into two significant problems: 7173 kHz is outside the General band (I hold a General class license), and my computer puts out some strong noise on 40 meters, effectively preventing me from receiving anything.

After quite a bit of troubleshooting, I couldn't solve the computer-noise problem. I tried everything—moving the rig about 15 feet away (the limit of the audio cables), unplugging all the cables from the computer (didn't change anything), even wrapping the PC in foil (my wife thought I'd lost it). With the deadline looming, and an editor who transforms from jovial into grumpy just after deadline, I did the only thing I could—Audio Loopback.

The image of fig. 4 comes from an audio loopback, listening to my own transmission through a piece of wire. After sending the Bugs Bunny file, about 3 kB, my 300-MHz AMD K6 took about 100 seconds to decode the image—and that's on a perfect channel. Had there been some minor errors in the data due to noise on the channel (which I simulated by playing with the audio controls), it could take almost double that time. Again, a GHz-class computer is recommended, and now you know why.

I then sent the image of the CQ booth at Dayton 2003, splitting the 25-kB file

into five parts. In the waterfall display you are seeing the first 15 or so seconds of the first of five pieces. Since the receiving end can start decoding the first piece while recording the second piece, the end result is a faster display of the data when the file is split up.

Until I either figure out how to quiet down my PC or get a new (hopefully quieter and faster) one, I'm kind of stuck. It's not exactly the same as pulling an image off the air, but desperate times call for desperate measures. I'll report in a future column on how I made out with (1) my upgrade to Extra, (2) quieting down this computer, and (3) actually receiving digital SSTV off the air.

So ended my experiments with digital SSTV. Until I address those issues, I'm kind of dead in the water. The PC

noise also explains those annoying signals that seem to always get inside the passband whenever I'm trying to work PSK-31. I'd never given it much thought before, but now it'll annoy me just enough to make me fix it.

Well, that's all the time we have this month. Even though my first digital SSTV contact was, much like that first SSTV contact, a complete bust, I learned a few things along the way and that will end up making my station all the better. DIGTRX is not the only game in town. I mentioned HamPal, which you can find through a Google search, and there are others. I encourage you to load one of them onto your computer and give it a try! Until next time . . .

73, Don, N2IRZ

RF Amplifiers, RF Transistors, Chip Caps, Metal Clad Micas & Hard to Find Parts



HF Amplifiers
PC board and complete parts list for HF amplifiers described in the Motorola Application Notes and Engineering Bulletins:

AN779H (20W)	AN758 (300W)
AN779L (20W)	AR313 (300W)
AN762 (140W)	EB27A (300W)
EB63 (140W)	EB104 (600W)
AR305 (300W)	AR347 (1000W)



Low Pass Harmonic Filters
2 to 30MHz



HF Broadband RF Transformers
2 to 30MHz



RF Transformers
2 to 300MHz
Type "U"



HF Power Splitters/Combiners
2 Port:
PSC-2L Set 600W PEP
PSC-2H Set 1000W PEP
PSC-2H4 Set 4000W PEP

4Port:
PSC-4L Set 1200W PEP
PSC-4H Set 2000W PEP
PSC-4H5 Set 5000W PEP



CCI Communication Concepts, Inc.
508 Millstone Drive Beavercreek, OH 45434-5840
Email: ccl.dayton@pobox.com
www.communication-concepts.com
Phone (937) 426-8600 FAX (937) 429-3811



DX ENGINEERING
When You Want The Best!

New!



Saratoga EZ-PSK Interfaces

- Sound card interface for digital mode operation
- No jumpers—just plug in and go
- No external power required
- Icom, Kenwood, and Yaesu versions available
- USB interface versions also available
- All packages include CD with HamScope & Digipan software

EZ-PSK, Icom 706/703	SALE! only \$39.95
EZ-PSK, RS-232 models	\$43.95
EZ-PSK, USB models	\$73.95

See DXEngineering.com for more details!

RFI Suppression Beads

- Reduce or eliminate ignition/injector noise
- 3 S-units improvement not uncommon!
- Hear many more stations
- New mix is optimal for HF
- Special large-mass beads
- Snaps on—no cutting
- Mobile or home use—any RFI application

DXE-CSB-275P	Up to 0.275", 10-pack	\$23.25
DXE-CSB-525P	Up to 0.525", 5-pack	\$22.25
DXE-CSB-750P	Up to 0.750", 5-pack	\$25.80

HOT WYRZ™ Shortened Multi-band Antenna

- Lightweight design
- 3.5 through 30 MHz
- Works on Ham and SWL frequencies
- 74 feet long—no coils—linear loaded elements
- Works with 4:1 balun (in-tuner or separate)
- UV-rated polymer insulators
- Includes center and end insulators, stainless steel hardware, 100 ft. stranded 300 ohm feedline, 100 ft. Dacron guy rope

DXE-SWA-070 **\$75.95**

New!



Patent Pending

High Strength Stainless, Aluminum, & Polymer Clamps

Complete dimensions available on our website.
Starting at just \$3.99!



Check our secure website for Sales, Specials, E-mail and the parts that you need!

Tech/International:
330.572.3200

SOURCE CODE: 0908CQ

Order Today! **DXEngineering.com**

1.800.777.0703

The Hamfest Buddy, A QRPp Treat

Although an unconfirmed rumor, we hear some readers have not been on the HF bands in several weeks—possibly one or two months (gasp!). We have the perfect suggestion to boost your interest at least 10 dB—go QRP! Yes indeed, friends and fans. Whether you are stifled by antenna restrictions or a limited budget, or if you have already worked the world with high power, QRP will open a new dimension in real radio enjoyment. Build one or two low-power projects along the way, too. Homebrewing simple circuits is half the fun of QRP.

Is QRP a pursuit for all seasons? You bet, and that point is being proven every day regardless of the sunspot count. While tuning 30 meters only a few nights ago, for example, we spotted USØZZ calling CQ with no takers. I answered him while running only 4 watts with my little Elecraft KX-1, and he snapped back a heartwarming reply with an RST of 339. After the usual exchange, he also dropped to 4 watts and we enjoyed a solid two-way QRP QSO. Doing the same thing with 50 or 100 watts just would not have the same pizzazz. Yes, we are having fun with QRP, and yes, there's room for you, too. Check out the QRP action on 7040 or 14060 kHz one weekend soon. Now let's bring on the hot news of the month!

The Hamfest Buddy

We have been promising to reveal a new quick-brew mini project for several months and the time has now arrived. Our new treat is called the Hamfest Buddy (photo A). It is a go-anywhere QRPp transmitter for fun or emergency use, and it also serves as a wireless BFO for monitoring favorite frequency activity with a portable AM-mode shortwave receiver. You can assemble the Buddy in an hour, it operates from an ordinary 9-volt battery, and it is also available as a low-cost kit.

I call it the Hamfest Buddy because it is perfect for putting you in the mainstream of QRP action at hamfests. How so? QRPers attending hamfests habitually gather in an out-of-the-way motel room after show hours to compare circuits and rigs or just to get on the air for fun. The best way to spot that activity is with a semi-wide-bandwidth receiver covering the ever-popular QRP frequency of 7040 kHz. The Hamfest Buddy fills that bill by acting as an adjustable BFO for the receiver, plus it lets you transmit back on the same frequency. In addition, the little transmitter can be used stand-alone style for emergency preparedness while traveling to or from hamfests. Power output is low (50 or 60 milliwatts typical) but quite adequate for general motel-area coverage with only a 2- or 3-

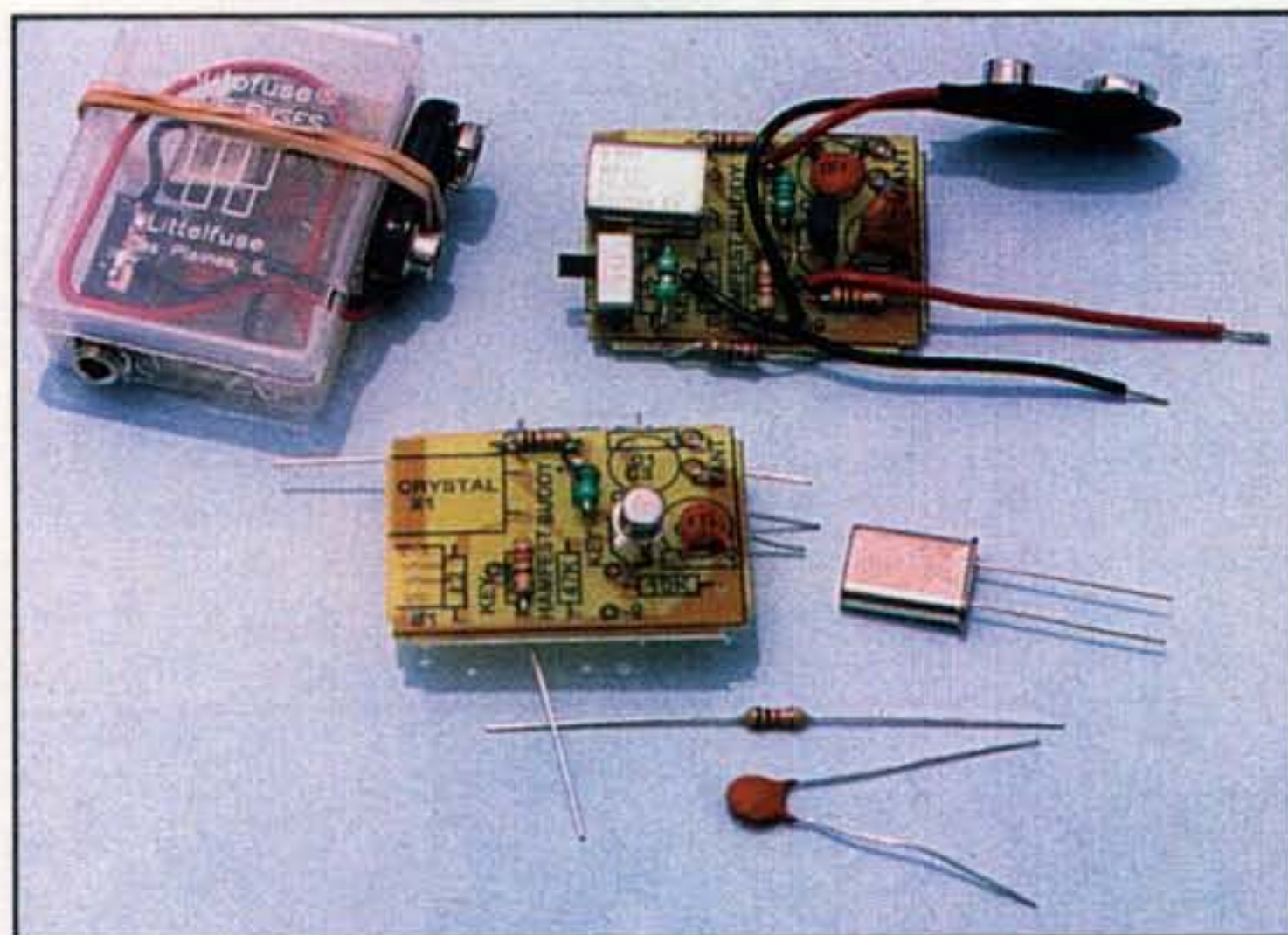


Photo A—The Hamfest Buddy in various stages of assembly. The little gem fits in a 1.5" × 1.75" plastic fuse box or pill box. It functions as a go-anywhere two-frequency QRPp transmitter and wireless BFO for a mating receiver, and it is a perfect quick-brew project for newer amateurs. Kits are available from K4TWJ (see sidebar).

foot wire as an antenna. Also, some good QRP records have been set using even less power and an outdoor antenna. Try it. Who knows? You might even outdo Tommy Rockford, K6ATX, when he used a grid-dip oscillator to expose the crook's hideout and call for help in the classic amateur radio novel *SOS at Midnight!*

What about a mating receiver for the Buddy? That's the good part. It works with small AM/FM/shortwave radios such as the little Grundig Mini 300 or Grundig FR200 shown in photo B. These famous-name radios are low-priced, remarkably sensitive, and well-calibrated (the Mini 300 even has a digital readout and clock-radio function for a



Photo B—Portable AM/FM/shortwave radios such as the hot little Grundig Mini 300 and FR200 shown here are great traveling companions. They are handy for on-the-spot SWling, and when placed near a Hamfest Buddy they make a neat two-frequency mini-transceiver.

*4100 S. Oates Street #906, Dothan, AL 36301
e-mail: <k4twj@cq-amateur-radio.com>

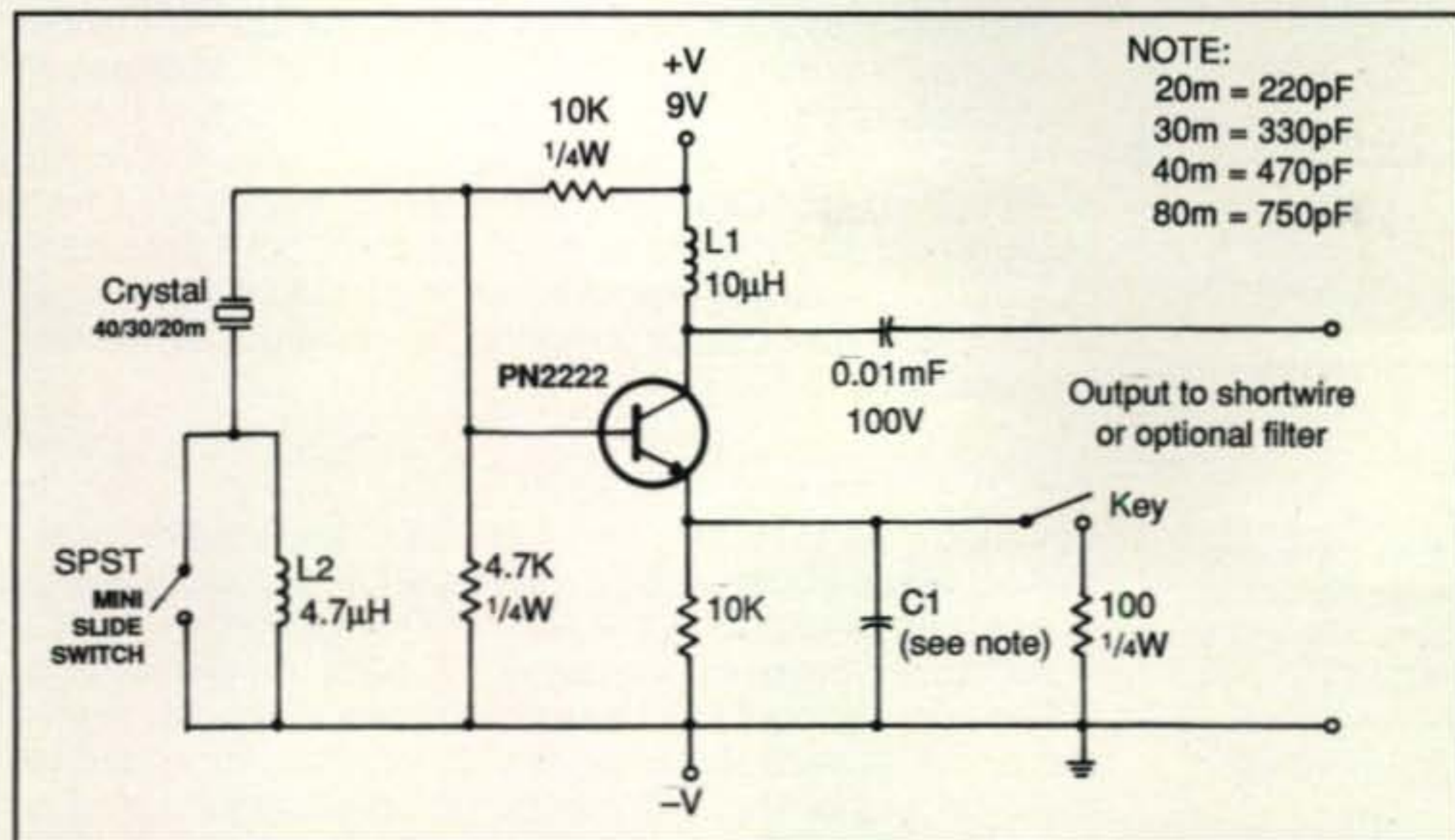


Fig. 1— Circuit diagram of the Hamfest Buddy, a unique one-transistor mini-rig and fun project that goes with you anywhere, anytime.

travel alarm). They are available from leading amateur radio dealers such as Universal Radio, Inc. (5830 Americana Pkwy., Reynoldsburg, OH 43068; telephone 1-800-431-3939 or via <www.universal-radio.com>). The radios are mainly designed for receiving the international shortwave broadcast bands (e.g., 41/40 meters) and lack a BFO, but that is no problem here. You just place

a Hamfest Buddy within a few inches of the receiver and it radiates a BFO signal into the radio for copying CW. Also, since the receiver's (AM) bandwidth is around 6 kHz (and the Buddy has two switch-selectable frequencies approximately 2 kHz apart), you hear all the action with ease. When you wish to call a station, just grab the key and start transmitting. It's that simple.

Hamfest Buddy Kits Available

Realizing that many of our amateur radio friends would like to build the Hamfest Buddy but do not have the time to hunt down parts or lay out a circuit on perfboard, I put together some low-cost kits complete with all parts, crystal, PC board, and "can't miss" notes. The kits do not include a plastic case (you supply that item), but they have been favorably endorsed by seasoned amateurs and newcomers alike as a genuine "fun project." They are available direct to you from me, Dave Ingram, K4TWJ, 4100 S. Oates St. #906, Dothan, AL 36301. The kits are \$16 plus postage (\$2.00). Specify if you want a 7.040, 10.106, 14.060, or 3.58 MHz crystal in your kit, and I will zip a Hamfest Buddy directly to you.

We may be moving a bit quickly here, so let's slow the pace and I will explain.

Circuit Details

Study fig. 1 and you will see the Hamfest Buddy is basically a one-transistor transmitter with some unusual mods and expansions. Notice, for example, the switch connected between the crystal and ground. It shorts out VXO inductor L2 to give the Buddy its two operating frequency capability. Next notice the

Learn with the Best — Gordon West & W5YI!

Tech, General, Extra, Commercial study manuals, audio courses, software & more



Technician Class

Get into ham radio the right way — studying with Gordo! His new *Technician Class* book reorganizes the Q&A into logical topic groups for easier learning. His audio theory course brings ham radio to life and is a great study companion to his book. W5YI software includes Gordo's answer explanations from the book, making learning easy and fun!

Technician Class book GWTM \$15.95
Technician audio theory course
 on 6 audio CDs GWTW \$34.95
Tech book + software package NCS \$39.95

Tech + General Value Package

Technician & General Class books + W5YI software package. Includes 2 Gordon West study manuals, W5YI Morse code software & free Part 97 book. TPG \$59.95

W5YI Ham Operator Software

Includes all written and code exams, plus W5YI CW software on a CD-ROM, with free Part 97 booklet.

HOS (no books) \$39.95
HOSB (with 3 study manuals) \$79.95



General Class

Upgrade to the HF bands by earning your General Class ticket. Gordo's *NEW* book includes all the Q&A along with his fun explanations that make learning easy. His audio course is a great way to learn if you spend a lot of time in your car or truck. The W5YI interactive study software gets you ready for the exam — and to get on the HF bands!

General Class book GWGM \$17.95
General Class audio theory course
 on 4 audio CDs GWGW \$24.95
Book + software package GUS \$39.95

Learn Morse code for your upgrade to General!

Morse code Learning Course
 on 8 audio CDs GW05 \$39.95
CW Teacher on 2 audio CDs GWCT \$14.95
Code software 0-48 wpm WMC \$14.95
Morse code 5-16 wpm - tape GW13 \$29.95
Morse code 13-20 wpm - tape GW20 \$29.95

Get your commercial license!

GROL-Plus book — FCC Elements 1, 3 & 8 for MROP, GROL, & radar GROL \$39.95
GROL-Plus book + software GRSP \$69.95



Extra Class

Let Gordo help you get your top ham ticket, Amateur Extra Class! His book includes memorable answer explanations to help you learn the material and understand the correct answer. His audio theory course reinforces learning. The W5YI software helps you prepare for that tough Element 4 exam.

Extra Class book GWEM \$19.95
Extra Class audio theory course
 on 7 audio CDs GWEW \$39.95
Extra book + software pkg. ECS \$39.95

Basic books teach you Electronics!

Basic Electronics BELC \$19.95
Basic Digital Electronics BDIG \$19.95
Basic Communications Elect. BCOM \$19.95

Getting Started in Electronics

by Forrest M. Mims

A great introduction for anyone who wants to learn electronics fundamentals. Includes 100 projects you can build, and great experiments that demonstrate how electricity works! GSTD \$19.95



Order today from W5YI: 800-669-9594 or on-line: www.w5yi.org

The W5YI Group • P.O. Box 565101 • Dallas, TX 75356

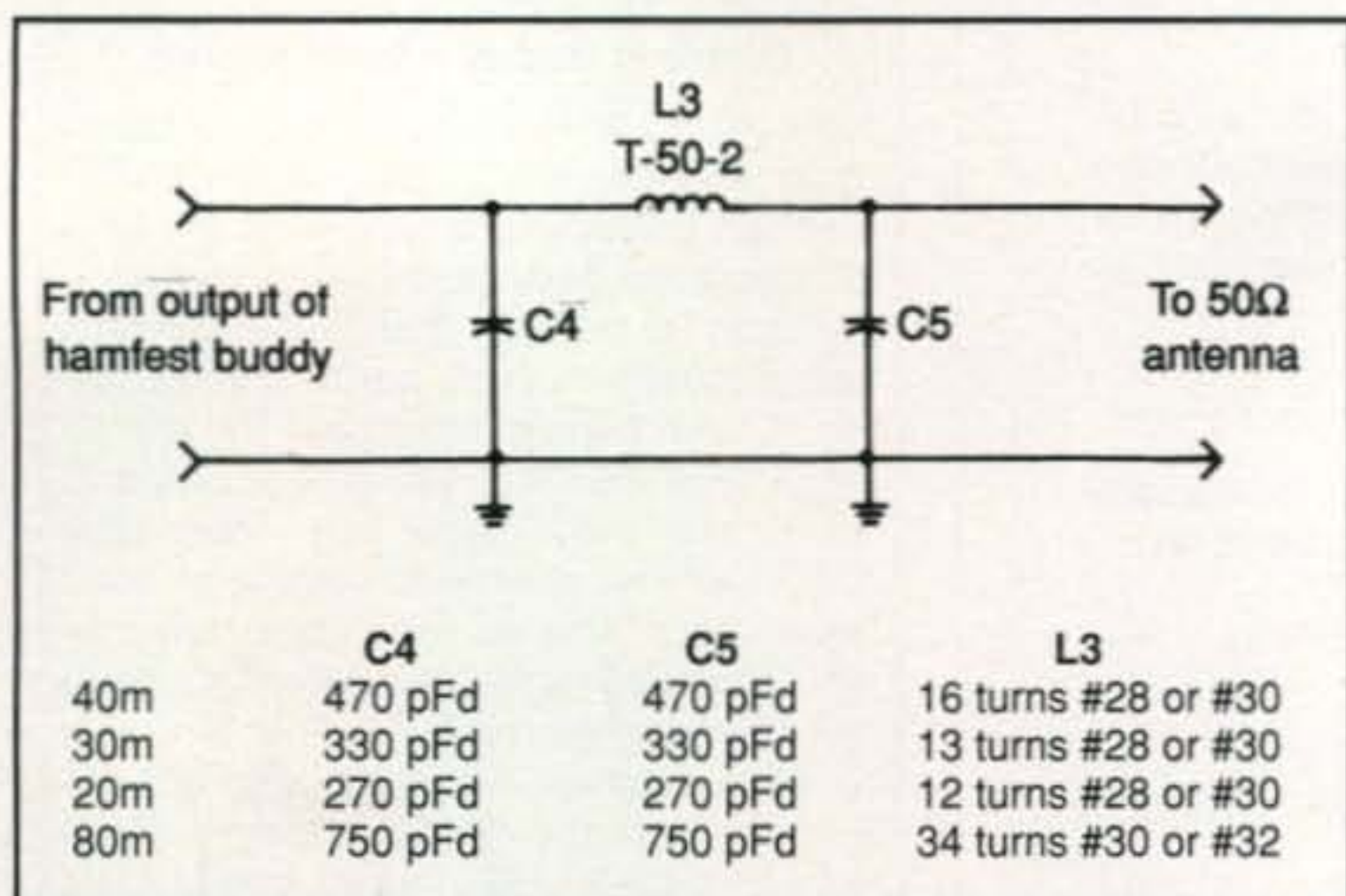


Fig. 2— Values of optional output filter components for various bands.

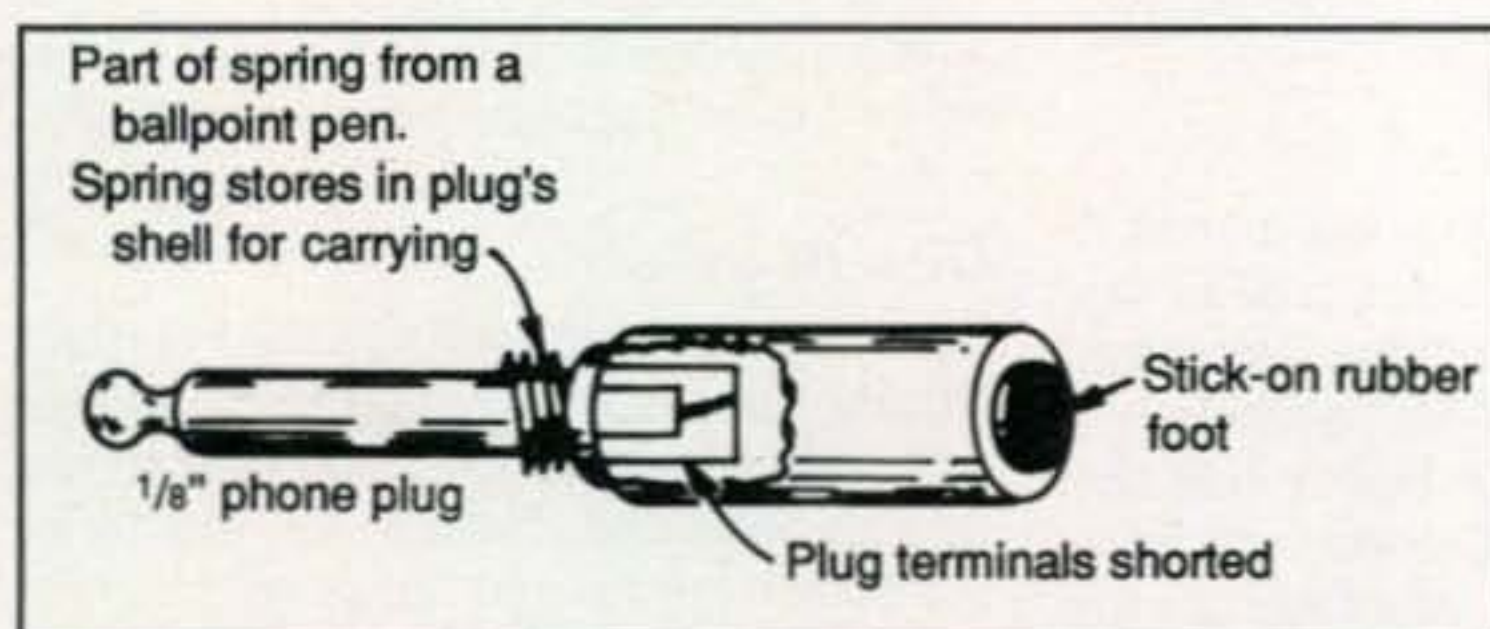


Fig. 3— Outline of a super-simple "plug key" for on-the-spot use with the Hamfest Buddy.

two resistors connected to the transistor's emitter. During key up or receive, the 10K-ohm resistor limits circuit current to approximately 0.8 ma and output to 10 or 20 microwatts. This is the ultra-weak (BFO) signal that radiates to a nearby receiver tuned to the Buddy's frequency. There it beats with incoming signals to copy CW tones. Switching VXO inductor L2 in/out of the circuit then shifts the receive range a couple of kilohertz for tuning.

Closing the key connects the 100-ohm resistor in parallel with the 10K-ohm resistor so circuit current rises to approximately 30 ma and output increases to 50 or 60 milliwatts. This change in current also produces an automatic 500- or 600-Hz frequency shift, which makes a good CW offset. Since the oscillator runs continuously, there are no noticeable key clicks or chirps like those found in many single-transistor circuits.

You now probably are asking if slightly more power can be squeezed out of the transmitter, and the answer is yes—with a caveat. A 2N2222 is capable of 250 to 400 milliwatts of output by increasing collector potential to 12 volts and reducing the (100 ohm) emitter resistor's value, but experiment carefully here. The transistor may overheat and die when emitter resistance is less than 60 or 70 ohms.

AGC action in low-cost shortwave radios (especially those without an RF gain control) usually leaves much to be desired, so the receiver may experience front-end overloading during transmit. A short jumper wire clipped between the radio's whip antenna and earphone socket's ground connection helps reduce such overloading. If you mate a communications-grade SSB/CW receiver with the Hamfest Buddy and do not need its wireless BFO function, incidentally, disconnect one end of the 10K-ohm emitter resistor (that way it will be readily available for future in-field use with an AM-only shortwave receiver).

Overall size and portability was a prime consideration when I designed the Hamfest Buddy, so I made its output/band-pass filter optional and placed it outside the box (a 1.5" × 1.75" AGC/ cartridge fuse box is perfect; a dental-floss case or pill box also works well). The filter is not mandatory when using a 2- or 3-foot clip lead for an antenna, but it should be included when used with an outdoor antenna such as a dipole or vertical. Values of filter components for various bands are included in fig. 2.

Assembly Notes and Operation

While the Hamfest Buddy's low parts count and simple design make it an ideal first "build it" project for newer amateurs, a few helping Elmer notes always warrant mention.

Remember, when working with small parts, transistors, and PC boards, always use a low-wattage "pencil" iron and extra-thin solder (such as RadioShack .022 silver bearing solder) to avoid bridges between close-spaced connections. Using a hand magnifier also helps.

Note the 10-μHy RF choke between the positive battery connection and the transistor's collector. Do not confuse it with the 4.7-μHy VXO coil or frequency shift will be high and output will be low. Watch the transistor's base wiring, too. It is easy to transpose locations of the 10K-ohm and 4.7K-ohm resistors.

If the Buddy's wireless BFO signal is too strong (that is, if it overloads or "blocks" the receiver rather than mixing with incoming signals), move the Buddy back a foot or two from the receiver. If you are using an outdoor antenna with the Buddy, disconnect it during receive to lower the BFO level.

If your assembled Buddy doesn't seem to work, insert a milliamp meter in series with a battery lead. It should indicate approximately 0.8 ma key up and 30 to 35 ma key down. High current indicates a dead short. Low current indicates an open circuit (did you remember to include an RF choke between +V and the transistor's collector?). If current is within limits but you do not hear the Buddy's signal, tune ±10 kHz of the crystal frequency. The VXO coil or the receiver's calibration may have altered exact frequencies. If necessary, connect a 2- or 3-foot clip lead to your receiver's antenna socket and place it near the Buddy until you hear its signal. If you only hear the Buddy on key down, try a lower value emitter resistor in place of the 10K resistor. Maintain diligence and patience. Troubleshooting is a good learning experience.

The Buddy also makes a neat, fun item for club meetings and hamfests. Just sneak up behind a friend tuning a receiver and ask if he/she hears the rare DX calling him/her on 7040 kHz (or your particular Hamfest Buddy's frequency). Then make up a wild DX call and transmit to the nearby receiver with the Hamfest Buddy in your pocket (no antenna needed here). What a gag!

Conclusion

We wrap up this month's column with a guaranteed-to-please topping for the Hamfest Buddy—a mating (and ridiculously simple) pocket key for emergency use (fig. 3). The key (and I use the term loosely!) is a monaural 1/8-inch phone plug with its terminals shorted and part of a spring cut from a ballpoint pen slipped over its end. You just half-insert the plug in the Buddy's socket and then press down on the plug to send CW. Adjust spring length for comfortable tensioning, and store the spring in the plug's back section for carrying. It's funky, but it works! Remember the Hamfest Buddy is a flea-power fun rig and enjoy!

73, Dave, K4TWJ

The ARD9000 makes Digital Voice FUN and AFFORDABLE!

Hearing is Believing!



Digital voice could be the biggest revolution in HF radio since SSB! All over the world, hams have been discovering how much fun it is to work HF without background noise.

AOR set the pace in this breakthrough technology with its ARD9800. Now, in response to worldwide demand, AOR has developed the ARD9000 which makes digital voice communications even more affordable.

AOR's digital voice technology delivers audio quality you have to hear to believe. Whether you are working digital voice across state lines or across an ocean, amazing doesn't seem strong enough to describe it.

With an ARD9000, it's easy to convert existing HF analog transceivers to work digital voice with NO transceiver modifications. The ARD9000 automatically detects a digital signal and decodes it, so you also maintain full analog capabilities. Whether a contact comes in as digital or analog, the ARD9000 can handle it.

Try it yourself!

You'll be amazed at how much fun it is to work ham radio in digital voice mode.

- NO transceiver modifications necessary
- Digital voice communications using existing analog transceivers
- Works on Single Side Band (SSB) mode.
- Automatic digital receive
- Optional interface cables for most popular transceivers
- Built-in high grade Vocoder (AMBE)
- Built-in FEC error correction
- Compact unit. Easy to operate.
- Utilizes a uniquely designed high performance DSP engine
- Uses the established G4GUO open protocol

Be sure to check the website at www.aorusa.com for FAQs, links to user groups and more!

Special Purchase Discounts Available for Ham Radio Clubs!

Specifications are subject to change without notice or obligation



AOR U.S.A., Inc.
20655 S. Western Ave., Suite 112, Torrance, CA 90501, USA
Tel: 310-787-8615 Fax: 310-787-8619
info@aorusa.com <http://www.aorusa.com>

Authority on Radio Communications

The Solar Myth

As indicated in the following report from Ken Neubeck, WB2AMU, there was yet another occurrence of aurora activity this year, this time during the June VHF QSO Party, thereby indicating that the sun is far from being inactive:

The VHF contest had very little sporadic-E activity, but there was significant tropo on 6 and 2 meters. In addition, by 1900 UTC on Sunday (June 12), a major aurora had developed. I had been operating QRP portable and went home, but when I heard the aurora developing on 6 meters I went back to the portable site and worked a number of Canadians while using 10 watts and a three-element beam up 15 feet on a 250-foot hill on central Long Island. I worked VE3RM (FN25), VE3SPW (FN04), and VA3KA (FN15), all on CW between 1952 and 2014 UTC. A number of New England stations were worked later as well.

There were more CW than SSB signals on 6 meters, a first for the VHF contest! I heard some aurora on 2 meters but could not work anyone with the QRP power level. The aurora appeared to be present in the Northeast for about six hours or so.

Addressing the myth of solar minimum, NASA published the following story on its website (http://science.nasa.gov/headlines/y2005/05may_solar_myth.htm) on May 5, 2005:

With solar minimum near, the sun continues to be surprisingly active. What follows is a report on how much activity continues on the sun despite it reaching sunspot minimum in the 11-year cycle.

There's a myth about the sun. Teachers teach it. Astronomers repeat it. NASA mission planners are mindful of it.

Every 11 years solar activity surges. Sunspots pepper the sun; they explode; massive clouds of gas known as "CMEs" (*coronal mass ejections*—ed.) hurtle through the solar system. Earth gets hit with X-rays and protons and knots of magnetism. This is called solar maximum.

There's nothing mythical about "Solar Max." During the most recent episode in 2000 and 2001, sky watchers saw auroras as far south as Mexico and Florida; astronomers marveled at the huge sunspots; satellite operators and power companies struggled with outages.

Now the sun is approaching the opposite extreme of its activity cycle, solar minimum, due in 2006. We can relax because, around solar minimum, the sun is quiet. Right?

"That's the myth," says solar physicist David Hathaway of the NASA Marshall Space Flight Center. The truth is, solar activity never stops, "not even during solar minimum."

To show that this is so, Hathaway counted the number of X-class solar flares each month during the last three solar cycles, a period spanning 1970 to the present. X-flares are the most powerful kind of solar explosions; they're associated with bright auroras and intense radiation storms. "There was at least one X-flare during each of the last three solar minima," says Hathaway.

This means astronauts traveling through the solar system, far from the protection of Earth's atmosphere and magnetic field, can't drop their guard—ever.

e-mail: <n6cl@sbcglobal.net>

VHF Plus Calendar

Aug. 4	Moon Apogee
Aug. 5	New Moon
Aug. 6-7	ARRL UHF and Above Contest (See text for details)
Aug. 7	Moderate EME conditions
Aug. 12-13	Poor EME conditions; <i>Perseids</i> meteor shower predicted peak
Aug. 13	First Quarter Moon
Aug. 19	Full Moon and Moon Perigee
Aug. 20-21	ARRL 10 GHz and Above Cumulative Contest (See text for details)
Aug. 21	Very Good EME conditions
Aug. 26	Last Quarter Moon
Aug. 28	Very poor EME conditions

—EME conditions courtesy W5LUU.

Recent events bear this out: Rewind to January 10, 2005. It's four years since solar maximum and the sun is almost blank; only two tiny sunspots are visible from Earth. The sun is quiet.

The next day, with stunning rapidity, everything changes. On January 11th, a new 'spot appears. At first no more than a speck, it quickly blossoms into a giant almost as big as the planet Jupiter. "It happened so quickly," recalls Hathaway. "People were asking me if they should be alarmed."

Between January 15th and 20th, the sunspot unleashed two X-class solar flares, sparked auroras as far south as Arizona in the United States, and peppered the Moon with high-energy protons. Lunar astronauts caught outdoors, had there been any, would've likely gotten sick.

So much for the quiet sun.

It almost happened again last month. On April 25, 2005, a small sunspot emerged and—*déjà vu*—it grew many times wider than Earth in only 48 hours. This time, however, there were no eruptions.

Why not? No one knows.

Sunspots are devilishly unpredictable. They're made of magnetic fields poking up through the surface of the sun. Electrical currents deep inside our star drag these fields around, causing them to twist and tangle until they become unstable and explode. Solar flares and CMEs are by-products of the blast. The process is hard to forecast because the underlying currents are hidden from view. Sometimes sunspots explode; sometimes they don't. Weather forecasting on Earth was about this good . . . 50 years ago.

Researchers like Hathaway study sunspots and their magnetic fields, hoping to improve the woeful situation. "We're making progress," he says.

Good thing. Predicting solar activity is more important than ever. Not only do we depend increasingly on sun-sensitive technologies like cell phones and GPS, but also NASA plans to send people back to the Moon and then on to Mars. Astronauts will be "out there" during solar maximum, solar minimum, and all times in between.

Will the sun be quiet when it's supposed to be? Don't count on it.

On the Air

This month we have lots of propagation reports for 6 and 2 meters to publish. We'll start off with one from Julio, NP3CW:

Julio Medina, NP3CW, reports the following: "Here is the activity to Puerto Rico during May 2005 on 6 meters:

On 10 May 05 K3TJK, K4RX, AC4TO 22:22 UTC 50110.0 50090 CW, W4SO, WB2QLP 22:33 UT, KC4PX, 50130.0 23:54 UTC, N4JJ FM01 00:43.

On 11 May 05 01:36 UTC N8LIQ EN56, 01:48 UTC WA3AFS, W8MIL EN74, 21:38 UTC KE3ESV EL87, WA2DOS EL86, N4TJ FM04, VE3GIB FN25, 21:47 UTC WB4HDC FM14, 22:07 UTC KI4IMA EL96, W4KVS EM 94, KJ4RB FM15, K4DLJ FM04 22:11 UTC, VP9GE FM72 22:33 UTC.

On 14 May 05 W4SO 00:17 UTC heard only in EL96, KD4ESV EN84 20:16 UTC, N1DL EL95, N4KJP EL96, K4RX EM70 21:06 UTC, N8CJK EN84, N8UUP EN82 21:57 UTC, K7BV/1 FN31, W3SO FN00 23:10 UTC, K4QI, KN4SM FM16, N4Baa FM16, AK3E FM19, K3TUF FN10, KB1DMX 23:19 UTC, K2PLF FM19, KB3EDY, VE2DFO FN25, W4SHG FM18, K1TOL FM44 23:29 UTC, KB1I FN04, W2MMD FM29 23:57 UTC.

On 15 May 05 N2CEI FN20 00:01 UTC, W3SO FM00, K2RZJ FM29 00:10 UTC, VP9GE FM72 00:12 UTC, PJ2BVU 22:11 UTC, FM5JC FK94 22:29 UTC, FM1BY 23:08 UTC.

On 17 May 05 W8PRO, KB4ETT, W8LYD, FM5JC 21:33 UTC, W3HH EL89, KE4WBO/QRP EL97 21:59 UTC, W4MAY EL97, YY5PER FK60 23:21 UTC, WE2N

EL95, W4ODH EM52, WA5LFD EM12.

On 19 May 05 HI8ROX FK58 00:07 UTC, 9Z4BM FK90 heard only 00:36 UTC, K4AHO/B EL 98 heard 00:39 UTC. 22 May 05 10:27 UTC F6HRP op Alan.

On 22 May 05 ZF2AM 21:25 UTC, N4BAA FM16, VE9AA FN66 22:20 UTC, 24 May 05 K9RJ, K7BV/1 FN31, K1GUN FN53 23:59 UTC.

On 29 May 05 IW5DHN 12:38 UTC, W4MZ EL98, 30 May 05 KE3WBO 12:06 UTC, WA8RE EM90, K3TKJ FM28, N3JPU FM19, VE1YX FN74, W1AY FN42, N3II FM19, K4RUM EL94, K1DZS FN42, VE1ZZ FN84, N3ALN FM19, WB2ODD, N2WSI, K7BV/1, W3UR, K1GDH FN42, KB3NDY FM28, W3TC FN00, KB3IWW FM28KB1LKB FN31, W1EN FN32 12:26 UTC, NA2R FN20, KE2N FM18, WA1NYV FN42, K2WU FM19, W1NG, ND3I EN90, W4TJ FM08, KG4HOT FM07, K1VW FN31, K3FN FN31, K8GUN FM09, N1XZW FN41, VE1RG FN65, KI4IMA EL96, KB2M FM29, K8MFO EN90, W1DIG FN31, KA1KOJ FM31, K4NB EL96, K8ROX EN80, WB2AMU 12:38 UTC.

Also N4TB EN80, W3LPL FM19, W3CMP FN10, W4DR FM17, KG4DSD EL98, K2UU FN30, W4RCL, K3TUF FN10, KG4QM FM16, K4NSM FM06, K2SIX FN20, N3AUS EN91, N4BAA FM16, AC4TO EM70, W8GEX EM79, KB3IIA FN10, N4RFN EL87, KB8TGH EM98, KB3LEF FM28 12:50 UTC, W8JKS EM89, W4EJG FM05, KD4WKP FM17, W2ACY FM29, AE3T FN20, W4FRA

FM15, W9ZR EN80, K2KJ FN31, WS4W FM06, K8LEE, W6IZT EM74, K2LZQ FN20, KA2CYN FN31, N4NX EM73, K2DZM FN20 AT 13:01 UTC

Also W8UV EM88, KC2TN FM29, N3FZ EN90, W4ZE EN90, K4SX EM74, K4AR EM76, KC2EVO FM29, W9JDT EM79, W3PT FN10, W2IX FN20, N4NN EM90, W4GCB, KY5R EM64 AL, K4YNT EM74, N1DG, K4YMQ EM63, N4WYH, KB1DMX FN31 13:13 UTC, K4RWP EM86 TN, K4MWB FM05, WA4GPM FN11, K4DJ EM95, N4HN EM95, N3SBA FM28, KG4PAC EM64, W3UJG FM19, W2OV FN31, N4AWU EM73, KB7BSA EM74, KF4MR EL83, WB4GOK EM95 13:25 UTC, N4KZ EM76, K4DY EM95, K4QI EM85 13:31 UTC, and WA8WV FM98.

This month there were good openings to North America, the Caribbean, Europe, and also a few heard from Africa, mostly 5T5SN. This activity was possible because of raining in the Caribbean for over two weeks, and also poor propagation on HF and aurora in North America gave some benefit to us in the Caribbean.

Scott Olitsky, AC3A, in EM28, reports: "I saw some reports of 2-meter sporadic-E on the propagation loggers while at work on May 31. I went out to the car at lunch time but did not hear anything. When I got home, 6 meters was open to the West Coast and the

ATTENTION DRAKE OWNERS!

Does your Drake drift? Tired of continually retuning?

Then You Need this External VFO!

The brainchild of Don Jackson, K5ATW, and Roger Bankston, W5IAB, these new **RB7500-series** DDS (Direct Digital Synthesizer) VFOs will put an end to your Drake's drifting problems. These devices employ a Zilog EZ80F91 CPU @ 50 MHz, and an Analog Devices AD9851 DDS chip to deliver a high-stability replacement for the signal from the rig's internal PTO.



Highlights include a smooth spinning shaft encoder with 1000 steps/revolution, selectable tuning rates of 1 kHz, 10 kHz, or 100 kHz per revolution, and a heavy solid cast aluminum tuning knob that delivers a truly professional feel. Installation is as easy as "plug in and play!" These **RB7500-series** DDS VFOs provide state-of-the-art frequency stability for your classic Drake gear!

- Dual VFOs with TX/RX/Transceive/Split*
- 4-Line Backlit LCD Display
- TCXO Reference with 2.5 ppm Stability
- 6 5/8" W x 4 1/8" H x 6 1/4" D
- AC Power Adapter & Interconnect Cable Included

Prices:

RB7500 (for the Drake TR-7): \$475

RB7501 (for the Drake TR-7, TR-7A, R-7 and TR-4310): \$500

RB7510 (for the Drake TR-4): \$475 NEW!

Plus Shipping and Insurance.

*Transmit capabilities are unavailable on the R-7.

Announcing the RB5000 Calibrator, a highly accurate TCXO-based Marker Generator for any brand of Vintage, Classic or Contemporary Gear

Place one of these at your operating position, and you'll always be able to determine your operating frequency with **precision!**



The **RB5000 Calibrator** is a very simple piece of test equipment that's just what the doctor ordered for checking the accuracy of the frequency display – be it analog or digital – of any HF radio receiver (or the receiver section within a transceiver). It generates calibration "marker" signals from 25 kHz to well over 100 MHz.

A TCXO (Temperature Compensated Crystal Oscillator) and frequency divider chain provides harmonic-rich switch-selectable calibration signals at 500, 250, 100, 50 or 25 kHz spacings. The frequency accuracy is 2.5 ppm (± 9 Hz at 3.5 MHz; ± 75 Hz at 30 MHz). Even if your vintage/classic receiver already has a built-in marker generator, it's no match for the precision of the RB5000.

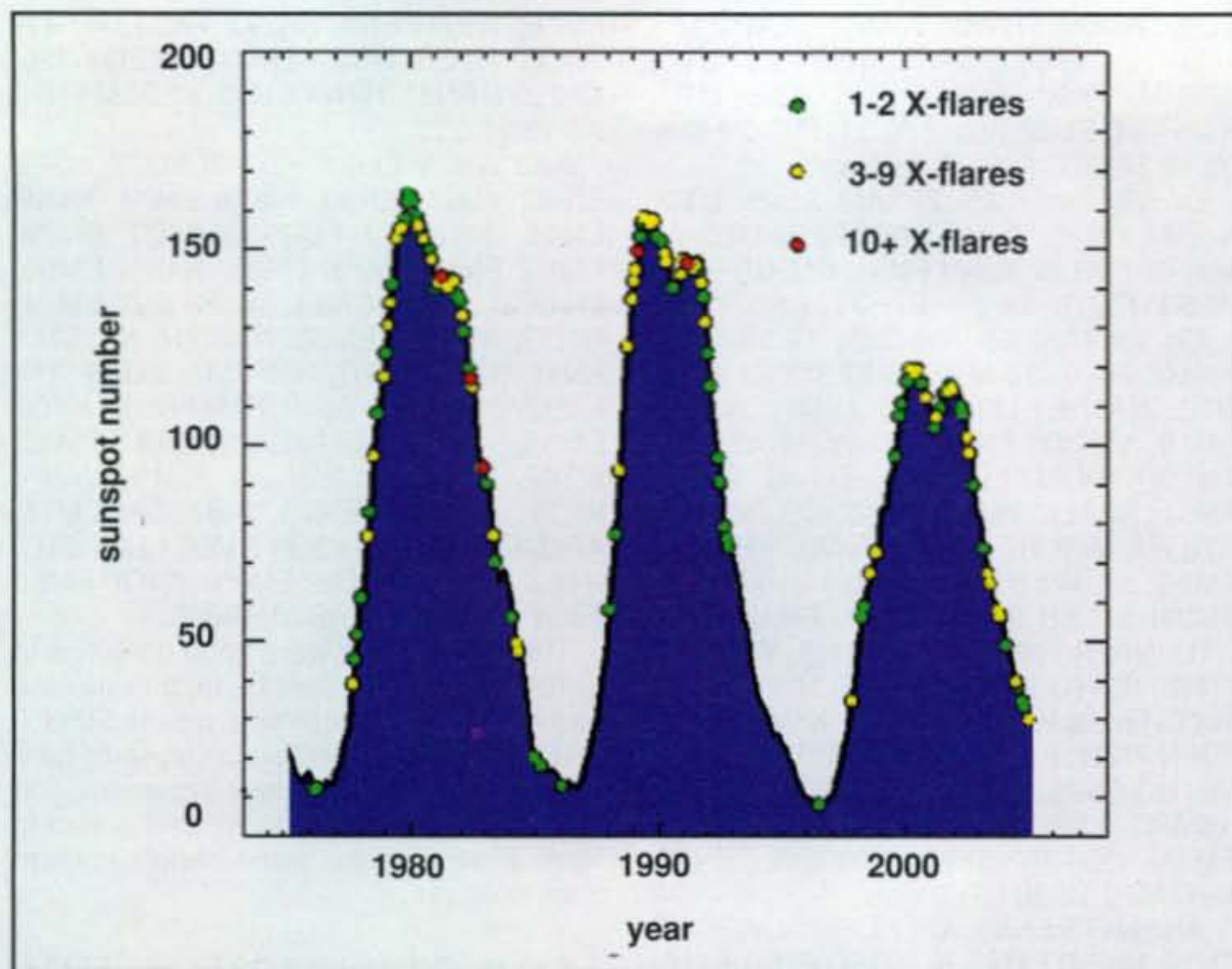
No "hook up" is required! A short wire "antenna" is connected to the **RB5000 Calibrator's** RF output and is positioned to couple the signal to the receiver. Powered from 5 "AA" batteries (included).

Price: RB5000 Calibrator: \$69.95

Plus Shipping and Insurance.

www.mistyhollowenterprises.com

Misty Hollow Enterprises • 1509 Derby Run, Carrollton, TX 75007
(214) 995-9691 • Mon - Fri 9 AM - 5 PM Central • e-mail: navaidststar.net



The frequency of X-flares during the last three solar cycles. Red dots denote ten or more flares in a month; yellow dots three to nine flares; green dots one or two flares. (Credit: David Hathaway, NASA/MSFC)

skip kept getting shorter. I was hearing stations in DM79 S9+40. I had to get my 2-meter array back on line, and while doing so, I blew the relays in the sequencer as I started to hear 2 meters open. I took the preamp and amplifier out of line and worked several stations in ID and NJ7A in UT barefoot with 50 watts between 0240 0300 UTC. The best DX was KI7JA in CN85."

Shelby Ennis, W8WN, reports the following on his Hot News website, <http://www.qsl.net/w8wn/hscw/papers/hot_news.html>: "A small 144 MHz *Es* opening occurred the evening of May 31/June 1 after a week with the MUF flirting with 2 meters. (There was also a smaller one on 5/21, but no information is available on it).

Since then, there have been a number of small 144 MHz *Es* openings reported. They have generally been across the southern part of the U.S., or in the west. All have been small. In fact, at this time it is not known how many times the MUF has reached 144 MHz, for the number of reported contacts has been small. Did the MUF actually reach 2 meters? Were the openings very tiny? Were only a few stations monitoring? Or, was it simply that no one was announcing what they were hearing? Everybody would be interested to see some reports (the WSVHF Reflector would be a good place for such a posting. If you aren't a member, sign up at <<http://mailman.qth.net/mailman/listinfo/wsvhf>>).

When an opening is in progress, be sure

to alert everyone via the 144 MHz Prop page, below.

Sporadic-*E* on 144 MHz in Europe is in full swing! There have already been several openings, some of them big. It seems to have started somewhat early this year, so this could be another interesting year! You can see a real-time log at <<http://www.gooddx.net/eskiplog.htm>>, or see a map of the action (and comments) by going to <<http://www.vhfdx.de>> and clicking on the date in question on the right side of the screen.

Sam Whitley, K5SW, reported the following: "May 31, 2005 started out well. At 1452 UTC WA7GSK in DN13, Idaho showed up. Over the next two hours K7MT, DN46, Montana; W7NBH CN96, Washington; and W7USB, DN17, Idaho were worked. Last signals were heard about 1650 UTC.

"Later in day, at 2345 UTC, WA7GSK showed up again, followed by K7MAC, DN13, Idaho, K7AD, DN06, in Washington; W7FHI, CN96, in Washington; KT6KT, DM26, in Nevada; and N7IJ, DN44, in Idaho. Last signal heard was K7MAC about 0200 UTC on June 1."

Dave Bernhardt, N7DB, reported the following to the VHF reflector:

On May 31, KI7JA reported double hop right off the bat starting at 1300 UTC. This was into southeast U.S. The propagation had changed to mostly into the south central U.S. by the time I got on at 1430 UTC. I worked WA5KBH, EM30, at 1511 UTC. A number of local stations were working sin-

gle and double hop in that direction during the morning. By mid-morning the Caribbean made it up here with a few locals working KP4TB around 1730 UTC. I had to go to work by this time, but W0RLI said the band only shut down for about half an hour during midday.

During the rest of the day, the most interesting path was a short one into DN17. This is pretty rare up here, but W7MEM (DN17) did work down here on 6 meters sporadic-*E*.

I did work my counterpart on the East Coast, N3DB, and heard N4DB in the evening. The evening path was more along the path towards IL, IN, OH, and points east.

During the early part of the evening 2 meters did open this way. KI7JA and W0RLI were in there for Nebraska and Kansas. KI7JA probably got the best DX by working AC3A in EM28. I have not confirmed yet, but someone mentioned hearing/working Texas last night, too.

There were more signs of a strong *E* cloud, with W7YM, DM57, 40/S9 at 0236 UTC, and W7GJ, DN27, 5/9 on backscatter at 0304 UTC. Arizona and W6 made a brief appearance around 0400 UTC.

Actually, it is easier to mention states that were not worked on May 31 and June 1. Nevada and New Mexico were the only western states not worked locally. Ones and twos were not worked, nor PA in the east. Pretty much the rest of the continental U.S. was worked from the local reports I have. No KH6, obviously. KL7 missed us, but was worked in southern California. Heard VE5SWL, but did not work him. Local stations report the band open until at least 0800 UTC, and open still at 1200 UTC on June 1. The signals were weak but double hop was worked locally. Altogether, we have had workable propagation for well over 24-hours. I have not seen conditions like this for some time. I have figured we might have conditions like this for the trailing edge of the cycle.

Beacon report: K0EC/b 559 1448 UTC; W0MTK/b 519 1459 UTC; WB5LLI/b EM40 539 1502 UTC; N0LL/b 519 1516 UTC; N0LL/b 589, K0DEC/b 599, KA0CDN/b 30/S9 1700 UTC; N0LL/b 589, KA0CDN/b 539, WB0RMO/b 539 0153 UTC; K6FV/b 579 CM87 0406 UTC; N0LL/b 419 1508 UTC. All times are on June 1. Last night also heard WR9L/b EN61 559 and W9VW/b 419, but I did not write the time.

Dan Clevenger, W0VD, EM 27, reported the following to the VHF reflector: "I did manage to get in on the 2-meter *Es* opening on June 1. The opening lasted about an hour with much QSB. The band seemed to open and close several times as the MUF bounced around 144.200. The squelch on the 2-meter rig opened at 0100 UTC when K7MAC came through at 59+. Stations worked: K7MAC, ID, DN13, at 0100 UTC; W7FHI, WA, CN96, at 0112; K7AD, WA, DN06, at 01:23; WA7GSK, ID, DN13, at 0131; NJ7A, UT, DN30, at 0139; and KI7XV, ID, DN22, at 0146."

Paul Kiesel, K7CW, reported the fol-

lowing to the VHF reflector: "I am still limited here to 60 watts and an old 16LBX. I did manage to work NØKQY in DM98 and WØEKZ in EM17. I heard quite a bit of K5SW and KBØHH, but wasn't heard on their end. Sure was a lot of fun."

George Kangas, KU4VQ, reported: On June 15, 2005, I worked W3XO/5 in EM00 at 1641 UTC and K5DDD in EM20 at 1647 UTC on 144.200 SSB. I noticed after the contacts that I was using 3 watts. Approximate distance was 2000 miles.

Current Contests

There are two important contests this month: The **ARRL UHF and Above Contest** is scheduled for 6-7 August. Complete rules can be found in the July issue of *QST* and on the web at www.arrl.org. The first weekend of the **ARRL 10 GHz** and above cumulative contest is scheduled for August 20-21. The second weekend is September 10-12. Complete rules for this contest also can be found in the July issue of *QST* and on the ARRL's website.

Calls for Papers

Calls for papers are issued in advance of forthcoming conferences either for presenters to be speakers, or for papers to be published in the conferences' *Proceedings*, or both. For more information, questions about format, media, hardcopy, email, etc., please contact the person listed with the announcement. To date this year the following organizations or conference organizers have announced calls for papers for their forthcoming conferences:

TAPR/ARRL Digital Communications Conference: Technical papers are solicited for presentation at the 24th annual conference to be held September 23-25, 2005 in Santa Ana, California, and for publication in the conference

Proceedings. Presentation at the conference is *not* required for publication. Submission of papers must be by August 9, 2005 and they should be submitted to: Maty Weinberg, ARRL, 225 Main St, Newington, CT 06111; or via maty@arrl.org.

Microwave UpDate: The following is via Chip Angle, N6CA, Technical Program Chairman: The 2005 Microwave UpDate will be held this year in the Los Angeles area October 27-31. Interested authors are invited to present a paper(s) for the 2005 conference. You don't have to give a talk to have your paper included in the conference *Proceedings*. Electronic submissions in Word, WordPerfect, or text format accepted by e-mail or CD. Usual drawing formats also accepted with paper(s). Cutoff date for inclusion in the *Proceedings* is September 5. Send an e-mail or write to: Chip Angle, N6CA, P.O. Box 35, Lomita, CA 90717-0035; e-mail: n6ca@ham-radio.com. Contact Chip as soon as possible with an abstract or a general idea to help the conference plan activities. Details go to: <http://www.microwaveupdate.org>.

Current Meteor Shower

Beginning around July 17 and lasting until approximately August 14, you will see activity tied to the *Perseids* meteor shower. Its predicted peak is expected to occur between August 12 and 13. For more information on this and other meteor shower dates, please see <http://www.imo.net>.

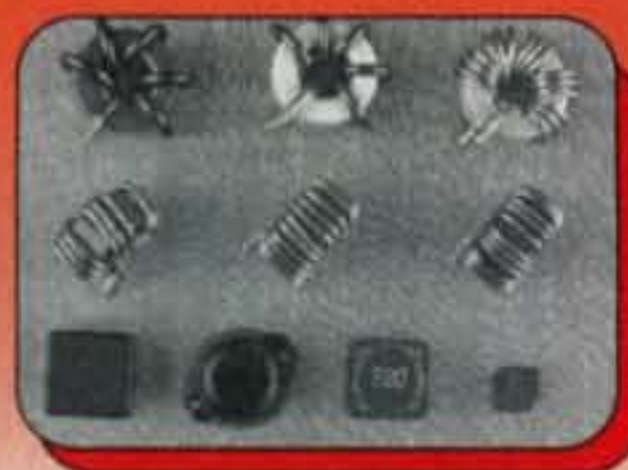
And Finally . . .

There have been reports of great 2-meter openings out of Europe, and I hope to include these reports next month. Thank you for sending me your material for this, your column. Until next month . . .

73 de Joe, N6CL

IRON POWDER and FERRITE from

AMIDON
Associates



Over 12 million pieces of toroids RFI Shield Beads, Rods, E-cores, Pot Cores, "W2FMI" Baluns & Ununs by Jerry Sevick, Coil Forms, RFI Kits, Experimental Kits, and many more.

**Guaranteed
Low
Cost!!**

Fast Reliable Service Since 1963
Free "Tech Flyer".

We welcome small orders from all over the world!

**In Stock For
Immediate
Shipment!**

CALL, FAX, or EMAIL YOUR ORDER TODAY

AMIDON
Associates

Tel #: 714-850-4660/800-898-1883 • Fax #: 714-850-1163

Email: sales@amidoncorp.com

www.amidoncorp.com

A Dayton Hamvention® Highlight

August's Contest Tip

One of the challenges of contest operating strategy is predicting when a band will open up. A trick I've used in the past is monitoring the WARC bands for activity as a way to determine the status of adjoining frequencies. For example, if you're trying to learn whether or not 15 meters is open to Europe, a quick listen to 17 meters may give you a leading indicator. If that band is totally dead, it's likely that 15 meters won't be opening soon. While this isn't foolproof logic, using the WARC bands to check propagation can be one more tool in your operating arsenal.

As may be the case for many of you, I've been to the Dayton Hamvention® many, many times—at least 300 times . . . or maybe it just seems that way. Whether it's visiting a ham radio convention or operating a contest, variety is truly the spice of life. Frankly, that's what I look for during my annual trek to Ohio.

In my case, the element of Dayton that makes it all worthwhile is what takes place after 5 PM. It's the fellowship that comes from gathering with other testers and still being able to meet a few new faces after all these years.

The highlight for me at Dayton is the Contest Dinner, which has become a Hamvention® tradition that was started by Tim Duffy, K3LR. Having a run of 13 years and counting, we have been blessed with great speakers, moving Hall of Fame presentations, and memories of those who have left us along the way.

This year we had the privilege of being entertained by Ward Silver, N0AX. While some of you either heard his talk live or read it on the internet, I want to bring his wit and well-intentioned humor to the CQ stage this month. It was a real treat to hear Ward speak at the dinner. It's almost as entertaining to read it here once again.

Twenty Years of Contesting from 2005 to 2025

By Dr. Beldar, L1AR

(a.k.a. H. Ward Silver, N0AX, copyright © 2005)

Close your eyes and imagine that you are transported to the Contest Dinner in 2025 as the evening's speaker unfolds his notes and begins his speech...

The early years of the 21st century have proven to be turbulent, but fertile, for radiosport contesting. Now one of the world's premier sporting activities, by what path did contesting ascend? The history of the sport is a rich one, but looking back, we can see that it was about 20 years ago that the Golden Age of contesting began. Tonight, we shall take a look back through the Contest Calendar of the past 20 years, identifying some of the high points of our favorite activity. Do you remember which are real and which are fantasy?

Let's set the controls of the way-back machine to...

2005

- Following K7JA and K6CTW's stunning smackdown of the SMS (*Short Messaging Service, text messaging by cell phone—ed.*) champs on NBC's *Tonight Show*,

*2 Mitchell Pond Road, Windham, NH 03087
e-mail: <K1AR@contesting.com>

Calendar of Events

July 23-24	Great Lakes Sweepstakes
July 30-31	RSGB IOTA Contest
Aug. 6	European HF Championship
Aug. 6-7	ARRL UHF Contest
Aug. 6-7	North American CW QSO Party
Aug. 6-7	10-10 Int'l Summer QSO Party
Aug. 7	SARL HF SSB Contest
Aug. 13-14	Worked All Europe CW Contest
Aug. 13-14	Maryland-DC QSO Party
Aug. 20	RDA Contest
Aug. 20-21	SARTG RTTY Contest
Aug. 20-21	Keymen's Club of Japan CW Contest
Aug. 20-21	North American SSB QSO Party
Aug. 20-21	New Jersey QSO Party
Aug. 27-28	ALARA Contest
Aug. 27-28	SCC RTTY Championship
Aug. 27-28	YO DX HF Contest
Aug. 27-28	Ohio QSO Party
Aug. 28	SARL HF CW Contest
Sept. 3-4	All Asian SSB Contest
Sept. 11	North American CW Sprint
Sept. 24-25	CQ WW RTTY DX Contest
Oct. 29-30	CQ WW DX SSB Contest

Sony announced that pile-up simulator PED would be included with the new XBOX game platform and the hams at Nokia added an iambic keying interface to the latest generation of mobile phones.

- California governor "Arnold" Schwarzenegger announces that "QRP is for girlie men" and declares 2006 will be the year of the California Kilowatt.

- Paris Hilton declares radiosport contesting to be "totally hot." Rap star CW Diddy goes platinum with "Loud is Good!" Parents forbid their children to get a ham license, ham radio is cool again, and the demand for radios immediately takes off.

- Later that year, N6TR breaks 450 QSOs in the September CW Sprint, but then gets a brain cramp and has to spend two days recovering in a hyperbaric chamber.

- The CW prosign OJ (- - - - -) is created to represent backslash in web URLs.

2006

- WRTC 2006, held in Brasil, is conducted in a verticals-on-the-beach style, but the contest is disrupted when Gator, N5RZ, removes his shirt, causing the entire beach to go topless, including the visiting all-girl Samba orchestra and dance troupe. No one seems to mind, although QSO rates drop dramatically.

- N5TJ and K1TO achieve a 4-peat as champions despite RA3AUU and RV1AW changing their calls to RA3TJ and RV1TO.

- W8JI wins the 160-meter CQ WW with a new Top Band Sterba curtain strung between Georgia mountain-tops.

- After the collapse of the BPL industry, students at Beijing University discover that by removing a diode, the salvaged sending units make great 20-meter QRP transmitters. Using inexpensive shortwave receivers and sound-card signal-processing software, BA, BD, and BG call signs outnumber JA's for the first time in CQ WW. However, none are heard east of Colorado.

- As thousands of SMS-trained CW operators flood the air waves, the ARRL creates several new operating abbreviations, such as...

- ARL 200 for "I am like so not!"
- QMH? for "Are you hot?"
- QMT for "Totally!"
- QMD for "Duh!"

2007

• Bill Gates and Microsoft take up contesting, buying Alpha, Elecraft, and SteppIR. Within months, prototypes of a hand-held, kilowatt PDA known as "Pocket Rocket" are heard on 75 meters as testers ask, "Can you hear me now?"

• The first real-time on-line contest crashes after the master server suffers a denial-of-service attack from the Pig Farmers Hacker Alliance.

• K9DX counters W8JI's Sterba Curtain by leasing the HF rights on the northern Illinois power grid and driving it as a phased array.

• Keanu Reeves plays the part of Romeo Stepanenko, UB5RR, with Robin Williams as Bill Kenamer, K5FUV, in the hit Shakespearean farce "Where Art Thou, Romeo?"

2008

• Congress passes the Spectral Purity Act, authored by Sen. Dick Norton, N6AA. The fraud trial of BPL executives begins immediately following the completion of the Enron sentencing hearings.

• FCC Chairman Riley Hollingsworth relaxes Part 97 rules to allow corporate-run contests. Kimberley-Clark immediately assumes sponsorship of the ARRL 160-Meter Contest, renaming it the Depends Classic and introduces a new model of Depends named "The Chairmaster." The ad campaign slogan is "Hold Your Frequency Instead of Your Water!"

• K1JT releases software for the Pocket Rocket that can listen to a pile-up and extract all callsigns simultaneously. Jim Neiger, N6TJ, announces that it "Cuts the Mustard!" and applies for the WRTC Senior Division using the software as his teammate.

• The merger of the largest spotting networks, combined with nearly ubiquitous broadband use of real-time, on-line contesting servers, allows all stations to be spotted everywhere at all times, rendering spotting effectively useless.

• NCAA Division I rival Big Ten and Atlantic Coast Conference schools slug it out during Field Day to the highest category 18A scores ever. College recruiters begin to appear at high-school radio club meetings looking for operators.

2009

• Disintegration of the Central Asian and Caucasus states results in the creation of 42 new kingdoms in six months. Ukraine displaces EA8 as the optimum DX contest location and UB5 stations take the top three spots in CQ WW Phone with stunning 75-meter multiplier totals. OH2BH is seen in the Rome airport booking flights to the Orient and haggling over excess baggage charges.

• The "Lake Erie" virus infects all Morse-enabled mobile phones, permanently changing their keying mode to Vibroplex.

• Given the widespread and undetectable use of remote stations connected via the internet, CQ WW creates a category for them. The initial competition is won by an entry consisting of the entire World-Wide Young Contesters membership who adapt SETI@home distributed computing soft-

RADIO WORKS

Antenna Fever

CAROLINA WINDOMS™ - best simple wire antenna yet.
1.5 kW, CW/SSB, low takeoff angle for DX, use your tuner
CW 80 80-10 m, 132' long Make a big signal. \$115
CW Short 80 80-10m, 84' long, full performance \$135
CW 40 40-10 m, 66' Used to set 2 world records. \$105
CW 160 160-10 m, 265' Be heard on 160 and 80 \$150
CW 160 Special, 160-10 m, 132' Be on all bands \$145
G5RV Plus 80-10 m, 102', with high power current balun \$65

NEW CAROLINA WINDOM "LP" series.
"LP" means "Low Profile." Matching transformer and Line Isolator are 1/4 the size of the standard units. Perfect for stealth, emergency, QRP, travel, etc. Full CAROLINA WINDOM performance, low visual impact. 600 watts PEP CW/SSB. Available in most CAROLINA WINDOM versions. Call

SALE 100' or more
RG-8X Premium, 95% braid 18¢
RG-213 Top Quality, 95% 39¢
RG-8X 100' 2 PL 259s installed + strain relief \$23.95

Current Baluns

B1-2K+ 1:1 2 kW SSB 80-6 m Current Balun \$29.95
B1-4K Ultra Ultra-high isolation of the B1-5K \$43.95
B1-5K+ 1:1 5 kW SSB 160-6 m Precision \$39.95
B1-200 1:1 200 W SSB 160-10m "Low Profile" \$31.95
Y1-5K+ 1:1 5 kW SSB 160-6 m "YagBalun" \$39.95
B4-2KX 4:1 2 kW SSB 160-10m Precision \$56.95
RemoteBalun™ 4:1 coax-to-ladder line interface \$56.95

RFI QUICK FIX™

For really tough RFI and RF feedback problems, you can't beat the new T-4 and T-4G **Ultra Line Isolators**. It's isolation factor is 50% higher than previous models - far better than expensive imported copies. The T-4G goes even further with its built-in ground strap for direct line isolator grounding. Before coax enters your shack, stray RFI is shunted directly to ground. Use with Vertical antennas at feed point. To prevent ground loop problems, install two T-4s between your transmitter, linear and tuner. Use with any antenna to reduce feed line radiation. This is the RFI BIG GUN.

NEW T-4-500 Line Isolator, \$33.95 1/4 the size of the original Line Isolator. 500 watts CW/SSB. Convenient size for home and mobile.

All Line Isolators have SO-239 input and output connectors.
T-4 & T-5 160-10 m, 2 kW+, winding Z @ 3.5 MHz > 75k, @ 14 MHz > 50 K.
T-4 Same as T-4G but without direct grounding \$37.95
T-4G Ultra Line Isolator, max RFI protection \$40.95
T-4-500 35k @ 3.5 MHz, 75k @ 14 MHz 500 W \$33.95
Check our web site for comparison with other brands. You won't believe the difference. The others don't even come close to this level of isolation.
Ferrite Cores, snap-on, 1-250 MHz 1/4 i.d. \$2.50 or 1/2" i.d. \$4.50

Wire and Parts
"And, not a dog in the bunch!"
PL-259ST Silver-Teflon, U.S.A. \$1.49 or \$25 pk of 20
PL-259GT Gold-Teflon, U.S.A. \$1.79 or \$33 pk of 20
N-200 'N' Silver-Teflon, installs like a PL-259 \$3.99
Coax & cable prices are per foot <100' >100'

ExtraFlex 9096IIA, flexible 9913 type, low loss 67¢/63¢
RG-213 Plus Enhanced, 96%+super quality jacket 49¢/43¢
Super RG-8X 1.5 kW @30 MHz, low loss, double shield 35¢/31¢

RG-8X JUMPERS - PL-259 on each end. Factory made, molded strain relief, top quality coax. 18" double shield - \$6.25
18" single shield - \$5.50 3' - \$6.25 3' double shield - \$7
6' - \$7 6' double shield - \$8 9' - \$7.50 100' - \$23.95
R1 Rotator 8 conductor (2 x #18, 6 x #24) 50' multiples 24¢
R2 Rotator conductor (2 x #18, 6 x #18) 50' multiples 39¢
#14 HD Stranded, 7-conductor hard-drawn 9¢
#14 FlexWeave 168-strand, bare, for any wire ant. 20¢
#12 FlexWeave 259-strand, excellent for long runs 22¢
450 Ladder Line #16 stranded conductors, poly, 420 Ω 31¢/25¢
450 Ladder Line #14 stranded conductors, poly, 390 Ω 36¢/31¢
Tinned-copper braid, for grounding, 1/2" @ 65¢/ft or 1" @ \$1.19/ft
LadderLoc Center insulator for ladder-line \$13.50
Weatherproofing Coax Seal, \$2.75 STUF, \$6 Cold shrink, \$7

Pulleys - for antenna support rope. Highest quality, small, lightweight, sailboat type for fibrous rope - for 3/16" rope \$14.95 or 5/16" rope \$16.95

Antenna Support Line BLACK Dacron, single braid, fungus and sun resistant 3/16" 750# test \$10 per 100' \$83 - 1000' spool
Kevlar-no stretch .075" dia. 500# test, Dacron jacket 200' spool \$18.50

Special Jim's Book "Frequently Asked Questions About Antennas Systems and Baluns" is a must have. It's on sale for only \$5 with an order.

Orders & Technical (757) 484-0140
FAX (757) 483-1873

Order Hotline (800) 280-8327

Box 6159, Portsmouth, VA 23703

VISA and MC welcome. Give card #, exp. date, signature. Add shipping, call for estimate. Prices subject to change. Mention ad for sale prices.

Download all or part of catalog at www.radioworks.com

Visit us at <http://www.radioworks.com>

General Catalog 80 pages of HF and VHF baluns, Line Isolators, high performance wire antennas, wire, cable, coax, connectors, station accessories, tuners, coax switches, support line, etc. It's all there. Free, allow 2-3 weeks for bulk mail, or send \$2 for a Catalog by First Class

ATOMIC TIME

1010 Jorie Blvd. #332
Oak Brook, IL 60523



Atomic Time 12" Modern Black

918/3321.00 \$34.95

The black wall clock with arabic numerals is great for home or office use. This clock features the German made Hechinger radio-controlled movement.

Atomic Time Analog Sport

< 065/1011 Black \$99.95

< 065/1010 White \$99.95

German made atomic watch with readout for digital seconds. Can display any world time.



Atomic Time Thermo-Calender

< 306T21 \$29.95

This clock is able to display time in 12 hour or 24 hour format. It also shows the date, the day of the week, the temperature, and signal reception. Automatically adjusts for daylight saving.

1-800-985-TIME
www.atomictime.com



Atomic Time Clock Radio ^ RCL-19 \$29.95

AM/FM radio with dual alarms, temperature, and date display. Includes an AC adapter and an optional external antenna to help reception.

Tell time by the U.S. Atomic Clock - The official U.S. time that governs ship movements, radio stations, space flights, and warplanes. With small radio receivers hidden inside our timepieces, they automatically synchronize to the U.S. Atomic Clock (which measures each second of time as 9,192,631,770 vibrations of a cesium 133 atom in a vacuum) and give time which is accurate to 1 second every million years. Our timepieces even account automatically for daylight saving time, leap years, and leap seconds. \$7.95 Shipping & Handling. (Rush available at additional cost) Call M-F 9-5 CST for our free catalog.

**FREE
SAMPLE
COPY!**

ANTIQUE RADIO CLASSIFIED

*Antique Radio's Largest-Circulation
Monthly Magazine*

Articles - Classifieds - Ads for Parts & Services
Also: Early TV, Ham Equip., Books,
Telegraph, 40's & 50's Radios & more...

Free 20-word ad each month. Don't miss out!

 1-Year: \$39.49 (\$57.95 by 1st Class) 
6-Month Trial - \$19.95. Foreign - Write.
A.R.C., P.O. Box 802-C19, Carlisle, MA 01741
Phone: (978) 371-0512; Fax: (978) 371-7129
Web: www.antiqueradio.com

www.surplussales.com Surplus Sales of Nebraska

Transient Voltage Surge Suppressor
240 / 120v - Single Phase
(ELE) LW2XXC

Absolutely the best surge
suppressor money can buy
for house or business!!
Housed in a Nema 4X (clear
plastic hermetically sealed
lid), fiberglass cabinet. A
dedicated two-pole disconnect or breaker, (100a,
250v (preferred), or 60a, 250v) is required for this
suppressor (non-fused).



It has two very high end Surge Blox 200 Suppressor
Modules @ 3,000 Joules or MOV per phase. (200,000
Peak Amps, 220v Clamp).

\$595

1218 Nicholas Street, Omaha, NE 68102
e-mail: grinnell@surplussales.com
WE'VE MOVED • 402-346-4750

 **CUBEX**
Quad Antennas

"A 45+ YEAR
TRADITION"

NEW EXPO-Series of MONO-Band, DUAL Band
and TRI-Band Quad Antennas. **NEW**
6 Meter to 17 Meter Models available

MARK Series PRE-TUNED HF QUADS "DX-KING"
SKYMASTER H.F. KITS FROM \$295 (10-15-20m)

VISIT OUR WEBSITE- www.cubex.com

228 Hibiscus St. "9", Jupiter, FL 33458
(561) 748-2830 FAX (516) 748-2831

Write Or Call For Free Catalog

Kanga US QRP Products

DK9SQ Collapsible Masts, Antennas

KK7B - R2Pro, miniR2, R1, BIQR, T2,
UVFO, LM-2

W7ZOI - Spectrum Analyzer & TG
micromountaineer, Power Meter

Embedded Research

TiCK Keyers and Enclosures

Tormet Engineering - DDS VFO

Sunlight Energy Systems

Charge Controllers, AmpKeyer

Liquid Tape & Plastidip

n8et@kangaus.com www.kangaus.com

3521 Spring Lake Dr. Findlay, OH 45840

419-423-4604 877-767-0675

2005 CQ Contest Hall of Fame

A tradition over the past 13 years has
been to use the Dayton Hamvention® Con-
test Dinner as a venue for inducting new
members into the CQ Contest Hall of
Fame. This year was no exception. I'm
proud to report that this year's award recip-
ients were Rusty Epps, W6OAT, and Jeff
Briggs, K1ZM.

I'm sure many of you know Rusty as one
of the early leaders in establishing the
renowned World Radio Team Champion-
ship (WRTC) movement. That, combined
with years of operating excellence and
trend-setting involvement in virtually every



*Bob Cox, K3EST, CQ Contest Director
(left), presenting the CQ Contest Hall of
Fame plaque to Rusty Epps, W6OAT.
(Photos courtesy K8CX)*



*Jeff Briggs, K1ZM, accepting his well-
deserved CQ Contest Hall of Fame
award at the Contest Dinner.*

area of contesting, made W6OAT a clear
choice for CQ's Contest Hall of Fame.
Congratulations, Rusty!

Jeff Briggs, K1ZM, is a leader in contest
circles by nearly any measure you might
choose. Many of you know Jeff from his
more recent accomplishment of building a
world-class contest station at VY2ZM.
However, Jeff has been building stations,
winning contests, and mentoring others for
years. It's a privilege to welcome Jeff,
K1ZM, to the CQ Contest Hall of Fame.
Well done, Jeff!

ware to link stations located in 64 countries
around the world.

- A new 160-meter single-op record is set
by K1ZM using K1JT software that synthe-
sizes signals so that they are generated or
received exactly on the grey line.

2010

- The theme of WRTC 2010, held in Ft.
Worth, Texas, is a Radio Rodeo. New events
include the Pig Farmer Roping competition,
a chili cook-off, and all contestants are re-
quired to ring a chuck-wagon triangle after
every multiplier.

- The team of N5TJ and K1TO face stiff
competition from the team of Argentinian
radio gauchos, but prevails for the fifth time
as K1TO cleverly selects I2UIY as his "life-
line" during the 72-oz. steak-eating event.

- Spread-spectrum contests make their
appearance, but nobody notices, since all
they do is raise the noise floor a little bit.

- Nike jumps into the contest sponsorship
arena by purchasing the CQ publishing
empire, changing the WW motto to "Just
Work It." The contest adds the radio triathlon
category where QSOs must be made from
a kayak, a bicycle, and a hang glider.

- To deal with intentional QRM during
contests, jammers and frequency stealers,
the FCC opens the first radio penal institu-
tion near the existing maximum-security fa-
cility in Leavenworth, KS.

2011

- Solar cycle 24 peaks this year and re-
leases a mega-flare during the IARU HF
Championship, pushing the auroral curtain
south to latitude 46 north. This wipes out all
HF bands except for stations in Scandinavia,
the upper U.S. West Coast, VE7, KL7, and
the UAØ icebreaker fueling station in Pevek
which sweep the top spots.

- In the aftermath of the flare, persistent
ionization levels are so high that the words
"rate" and "1296 MHz" are used in the same
sentence on several of the VHF+ contesting
reflectors.

- WA3FET designs a new, super-gain
antenna with a front-to-back ratio so high
that when installed at WP3R the first trans-
mission snaps the forward guys and knocks
the tower over backwards, crushing the new
shack constructed entirely of wooden
Sweepstakes plaques.

2012

- Retired admiral Scott Redd, KØDQ, is
elected President and during his inaugural
address announces plans to mandate a *min-
imum* height of 75 feet for all amateur tow-
ers and require that each subdivision be
home to at least one all-band, full-power
amateur station. His impeachment is com-
pleted by the end of February.

- The FCC finally grants ragchewers con-
test-free zones, but simultaneously creates

contest-only zones and cites several dozen ragchewers and net control operators for incursion violations.

- SETI claims that it has detected hostile signals from an extra-terrestrial civilization, but they turn out to be the long-delayed echoes of high-order intermodulation products from the first three hours of the 2011 Sweepstakes.

- MacAuley Culkin stars in the holiday hit video about a single-op bachelor, "Phone Alone."

- Florida approves the first ham-only cemetery. It's located on Silent Key.

2013

- The Amateur Radio Direction Finding World Championship attracts 25,000 competitors and 100,000 spectators. ESPN devotes a full week of coverage to the event, bumping the PGA Tour to the midnight time slot.

- NA Sprint is added to the Olympics as a demonstration sport after being renamed "Synchronized QRMing."

- Robot operators are finally allowed as assistants in the single-op categories. N6TR and K1EA collaborate on HAL-2001 software, but the prototype locks them out of the shack.

- Real-time WPX results are delivered one hour after the contest, resulting in a flood of complaints about the delay.

- Sponsored by Speedo, the first NCJ Swimsuit issue hits the newsstands. It is also the last NCJ Swimsuit issue.

2014

- WRTC is held in Hong Kong on 73 different floors of the Post, Telephone, and Telegraph headquarters building. N5TJ and K1TO refuse to go, but are kidnapped by the Chinese intelligence service and win again.

- MIT's Artificial Intelligence lab adopts Phone Sweepstakes as a test-and-development environment for artificial speech processing. They apparently could find no more challenging environment.

- A team of Unlimited Rovers finally reaches the theoretical limit of band-mode-grid point accumulation, but nobody seems to notice.

- Amateur radio makes the news when during a VHF+ contest, the K8GP Grid Pirates deploy surplus lasers from inertial fusion reactor facilities and accidentally "terminate" a hot-air balloon regatta.

- Joe Walsh, WB6ACU, forms "E.F. Johnson and the Navigators" and has a smash hit with "Gimme Your Full Call, Baby!"

2015

- The headquarters station category of the IARU HF is won by the reconstituted Grand Duchy of Fenwick club which declared all stations within its borders to be HQ stations.

- The ARRL joined with the AARP in creating the Assisted-Living category with Single Op - 1 Nap and Single Op - 2 Nap classes.

- VHF+ contests adopt the three-dimensional Maidenhead Grid Cube identifiers for the new Sky-Rover Category, but grid corner orbiting is prohibited.

- A small meteorite crashes into the Atlantic and the resulting resurvey of state borders finally shows K3LR to officially be an 8.

- The rapidly retreating Antarctic glaciers reveal the continent to actually be made up of 16 isolated island entities, which are all immediately claimed by countries ranging from Norway to Jamaica. OH2BH is seen in Tierra Del Fuego just before CQ WW trying to charter an icebreaker.

2016

- The first Interplanetary contest begins with multipliers consisting of the 24 medium-earth-orbit Unlimited Parcel Service transfer stations, both of Virgin Spaceway's geo-synchronous resorts, the moon city of Brightside, all three of Asa-Brown-Boveri's asteroid mines, the Indian colonies established at the fourth and fifth Langrangian points, and

the Russo-Israeli mission to Jupiter. The exchange is serial number and relative Doppler shift.

- K1JT releases software that extracts synchronous, coded signals from up to 234 dB below ambient noise, making possible the first single-weekend WAZ on the new VLF band of 73 kHz. Each QSO takes 20 minutes.

- The integration of Europe is completed as the borders are dissolved between the enclave of the International Knights Who Say Ni and the Kingdom of Dan Marino. This reduces the number of European multipliers to one, decimating DX contest scores from the eastern half of North America.

2017

- More corporate sponsors discover ham radio contesting as the Topband Distance Challenge becomes the Stew Perrier and



PowerPort
WorldPack II

Carries your mobile radio anywhere. Padded waterproof backpack, now comes with more antenna pockets and tie-downs, lower compartment for larger power supply. Call us 24/7

800-206-0115
www.powerportstore.com

Since 1942

www.RFfun.com

universal radio inc.

Radio Programming Made Easy with RT Systems Software

Order on-line or from your favorite radio dealer.

Since 1995, the original amateur radio programming software. Know what you're getting. Look for *RT Systems Software* on the label.

1-404-806-3776
Personal assistance and tech support

www.cloningsoftware.com
Ordering... Updates... Answers to Frequently Asked Questions

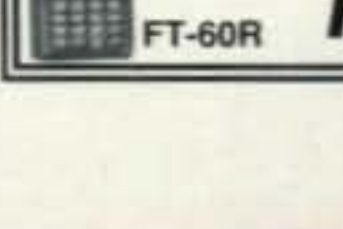
Now Available For The New Yaesu VX-6



FT-8800



FT-897



FT-60R



IC-2100

New! T1 Automatic Antenna Tuner

- Only 4.4x2.5x0.9"
- 160-6 m, 20 W
- FT-817 band-tracking option
- Assembled or kit



Our Pocket-size T1 stand-alone ATU can be used with all low-power rigs. Wide-range; tunes in any mode. Features memories, LED meter, internal battery. \$159 assembled, \$135 kit. Yaesu FT-817 adapter sets up ATU's network on every band change (\$49).

ELECRAFT
www.elecraft.com

(831) 662-8345
sales@elecraft.com

Jack Daniels creates W. C. Field Day. CW Sweepstakes is sponsored by A-1 Sauce.

- Climate change results in a permanent and violent cyclone over the New England states, centered on Newtown, CT. Black Hole stations sweep the Single-Op All-Band and Single-Band top spots for the first time ever. East Coast stations lobby vigorously for country quotas during contests.

- Morse code is conclusively shown to have positive effects on long-term brain health by stimulating neurons in rhythmic patterns.

- The first interplanetary contest is still under way as responses from contacts with the Jupiter mission are still being received and decoded at the Arecibo radio telescope.

2018

- WRTC moves to Japan and is sponsored by the radio conglomerate YaeKenCom. The competitions are held on a specially created man-made island in Tokyo Bay in the shape of CQ Kitty, the event's mascot and current teen craze.

- A Chinese team using hand keys finally dethrones N5TJ and K1TO as N5TJ learns about warm saki and K1TO is disqualified in the sumo wrestling competition for accidentally soiling his loincloth.

- A team of graduate students from W9YT runs away with the VLF and LF single-band categories using notes from Nikola Tesla's research to design an antenna that shunt-excites the resonant cavity between the D-layer and the Earth's surface.

- Logs are finally received from the interplanetary contest multiplier stations, although the Jupiter mission's log is submitted as a black obelisk in a format no one can translate. The second interplanetary contest misses its launch window and is delayed for one sidereal year.

2019

- Starbucks was implicated in a low-band contest stimulant doping scandal. Triple Ginseng French Roast is added to the International Radiosport Federation's list of banned substances, which also includes inner-ear growth hormone, any form of "contest chili," and Beano.

- By being covered completely at high tide, the last of the remaining non-volcanic Caribbean islands was declared submerged by the World Geographical Society. This leaves only the Cuban Mountaintop Chain, Monserrat, and the Island of Windward in Zone 8.

- The Four Corners Off-Road Emissions Society's Battle Rover won the first running of the Baja 500 ElectroRove-In with an average speed of 47 QSOs per mile over the rugged desert course. The Battle Rover was built on a surplus self-propelled missile launch platform outfitted with Force 12's all-band "Fly's Eye" phased array antenna systems driven by fourth-generation Pocket Rockets.

- SteppIR introduces an inflatable discone. Development is sponsored by Viagra.

2020

- ARRL declares 2020 to be the Year of

Contesting Hindsight and creates special entry categories for the long-disused modes of SSB, wideband FM, and RTTY.

- The number of entries in major contests has grown beyond the limit of individual log checkers to process. The ARRL and Nike-CQ jointly petition the government for emergency computing assistance and a contract is negotiated with IBM for the design and construction of a new contest server—Deep Q.

- The methods used by log checkers to determine unique, not-in-log, and busted QSOs are declared a national secret and the algorithm is sealed under court order.

- A United Nations inquiry is opened into why plaques from the first interplanetary contest have still not been received.

2021

- The United Mexicanian States grants sovereign status to all native aboriginal tribes, creating the 127th ARRL section of VZØ, Baffin Island. KE3Q/VZØ wins all three modes of Sweepstakes.

- Radiosport finally becomes an official Olympics sport operating under the rules for Ice Dancing. The first competition is marred by scandal as the French judge is discovered feeding busted callsigns to the Australian team.

- The floating island cities of the South China Sea are accepted into the IOTA program, but not for DXCC, since the antennas are not land-based. One city is blown onto Scarborough Reef during the ARRL DX contest, creating an uproar for several hours until high tide lifts it off again. No one is able to ascertain whether the city would be considered scaffolding and the late Wayne Mills, N7NG, left no instructions in his will in this regard.

- The TV show "The Call is Right!" is the highest rated game show on Monday nights.

2022

- WRTC returns to its birthplace in New Seattle, Washington, funded by the sale of founder K7SS's world's largest collection of Hawaiian shirts. Although the old Seattle was inundated by the Great Earthquake in 2018, several of the old sites are reused and the winners operate from the rotating restaurant of the Space Needle, now surrounded completely by salt water.

- In a first, a local team of Orca whales enters and sweeps all of the digital competitions, speaking directly into hydrophones. This has big implications for the IARU HF Championship, since aquatic mammals can now activate the so-called "water zones." Instead of plaques, the Orcas ask for a nice salmon or two.

- The winning entry for CQ WW this year was submitted by the Sons of the VooDudes contest team operating from an aerostat platform at the focus of the equatorial anomaly—the correct height to have chordal hop propagation on all bands.

2023

- Alien ships appear in the skies during the frenetic transmissions of North American Sprint's code contest. They immediately

leave at high speed after hearing the phone portion of the contest.

- The hot topic among contest administrators is how long raw contest signals are allowed to remain in memory for analysis by processing software. Consensus is reached that 1 nanosecond should be enough for even the slowest computers.

- Room-temperature superconducting aluminum is used to create the first all-band tabletop phased array.

- Fred Laun, K3ZO, finally purchases a CW filter.

2024

- A cache of vacuum tubes is discovered in the W1AW basement and a "hollow-state" transmitter makes its first appearance on the amateur bands in 15 years. It immediately receives a "chirp" report.

- YaeKenCom delivers a radio capable of sending CW without key clicks, although no one can remember what a "key" is.

- In the face of growing contest spectrum demand, all other communications services are relocated to the microwave bands and all frequencies below 1 GHz are reallocated to amateurs.

- All contests are merge into a single giga-contest that runs continuously on all bands and modes. Winners are tracked on the GoogleHoo portal and covered by Las Vegas-based Worldwide Casino. Recent top scorers include

- * a schizophrenic with 26 different personalities, half of which have chronic insomnia

- * robot operators running CTRateMaster Platinum version 6.7

- * a two-dolphin team named #\$\$^&*()_!! from the Amazon river delta

- * and 14-year-old named Manu Franklin Chang, C71.2.TJTO, from the 2nd Langrangian colony

That brings us to the current day, 2025. In order to fully appreciate our good fortune, we must acknowledge the contributions of those testers at the millenium who built the foundation of contesting.

A toast! Although their radios were primitive and their scores unimaginably puny, they opened the door to modern contesting—found on the bands at all times and followed by sentient beings around the world and from Venus to the Gas Giants. May we have the fortitude as they did to keep our butts in the chair and our signals in the air! Radiosport forever!

Final Comments

August is a very busy month with contests of all sizes and shapes. I'd suggest you give a few of them a try and use the opportunity to fine tune your new summer antennas or get the cobwebs out of your dormant ears. Never forget that some of the smaller contests are a great way to find problems before you jump into the big ones!

That's all for this time. See you next month!

73, John, K1AR



9 Autry Irvine, CA 92618
(949) 458-7277 • (949) 458-0826

www.astroncorp.com



...POWER ON WITH ASTRON

SWITCHING POWER SUPPLIES...



MODEL SS-10TK



MODEL SS-12IF

SPECIAL FEATURES:

- HIGH EFFICIENCY SWITCHING TECHNOLOGY SPECIFICALLY FILTERED FOR USE WITH COMMUNICATIONS EQUIPMENT, FOR ALL FREQUENCIES INCLUDING HF
- HEAVY DUTY DESIGN
- LOW PROFILE, LIGHT WEIGHT PACKAGE
- EMI FILTER
- MEETS FCC CLASS B

PROTECTION FEATURES:

- CURRENT LIMITING
- OVERVOLTAGE PROTECTION
- FUSE PROTECTION
- OVER TEMPERATURE SHUTDOWN

SPECIFICATIONS:

INPUT VOLTAGE: 115 VAC 50/60HZ
OR 220 VAC 50/60HZ
SWITCH SELECTABLE
OUTPUT VOLTAGE: 13.8VDC

AVAILABLE WITH THE FOLLOWING APPROVALS: UL, CUL, CE, TUV.



MODEL SS-18

DESKTOP SWITCHING POWER SUPPLIES

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-10	7	10	1 1/2 x 6 x 9	3.2
SS-12	10	12	1 1/2 x 6 x 9	3.4
SS-18	15	18	1 1/2 x 6 x 9	3.6
SS-25	20	25	2 1/4 x 7 x 9 1/4	4.2
SS-30	25	30	3 1/4 x 7 x 9 1/4	5.0



MODEL SS-25M

DESKTOP SWITCHING POWER SUPPLIES WITH VOLT AND AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-25M*	20	25	2 1/4 x 7 x 9 1/4	4.2
SS-30M*	25	30	3 1/4 x 7 x 9 1/4	5.0



MODEL SRM-30

RACKMOUNT SWITCHING POWER SUPPLIES

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25	20	25	3 1/2 x 19 x 9 1/4	6.5
SRM-30	25	30	3 1/2 x 19 x 9 1/4	7.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M	20	25	3 1/2 x 19 x 9 1/4	6.5
SRM-30M	25	30	3 1/2 x 19 x 9 1/4	7.0



MODEL SRM-30M-2

2 ea SWITCHING POWER SUPPLIES ON ONE RACK PANEL

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25-2	20	25	3 1/2 x 19 x 9 1/4	10.5
SRM-30-2	25	30	3 1/2 x 19 x 9 1/4	11.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M-2	20	25	3 1/2 x 19 x 9 1/4	10.5
SRM-30M-2	25	30	3 1/2 x 19 x 9 1/4	11.0



MODEL SS-12SM/GTX



MODEL SS-10EFJ-98

CUSTOM POWER SUPPLIES FOR RADIOS BELOW

EF JOHNSON AVENGER GX-MC41
EF JOHNSON AVENGER GX-MC42
EF JOHNSON GT-ML81
EF JOHNSON GT-ML83
EF JOHNSON 9800 SERIES
GE MARC SERIES
GE MONOGRAM SERIES & MAXON SM-4000 SERIES
ICOM IC-F11020 & IC-F2020
KENWOOD TK760, 762, 840, 860, 940, 941
KENWOOD TK760H, 762H
MOTOROLA LOW POWER SM50, SM120, & GTX
MOTOROLA HIGH POWER SM50, SM120, & GTX
MOTOROLA RADIUS & GM 300
MOTOROLA RADIUS & GM 300
MOTOROLA RADIUS & GM 300
UNIDEN SMH1525, SMU4525
VERTEX — FTL-1011, FT-1011, FT-2011, FT-7011

CIRCLE 134 ON READER SERVICE CARD

NEW SWITCHING MODELS

SS-10GX, SS-12GX
SS-18GX
SS-12EFJ
SS-18EFJ
SS-10-EFJ-98, SS-12-EFJ-98, SS-18-EFJ-98
SS-12MC
SS-10MG, SS-12MG
SS-101F, SS-121F
SS-10TK
SS-12TK OR SS-18TK
SS-10SM/GTX
SS-10SM/GTX, SS-12SM/GTX, SS-18SM/GTX
SS-10RA
SS-12RA
SS-18RA
SS-10SMU, SS-12SMU, SS-18SMU
SS-10V, SS-12V, SS-18V

Defining "LID"

I hope you all are having a great summertime season. I personally like warm weather, although I could do with less humidity here in North Carolina. Some of my friends are diligently working on getting their antenna systems upgraded for the coming fall season—and hopefully better propagation. I suspect some of them are trying to "create" their own propagation with bigger, higher aluminum. Well, you know . . . it's been said for decades that antennas are the best investment you can make in your station. Adding an amplifier can only do so much, whereas even a small directional antenna can make a much greater difference. Many of you can't do much due to antenna restrictions, but anything you *can* do will certainly help.

What is a "LID"?

I'm going to drag out my old "soapbox" this month. I've been noticing a sad trend in recent weeks and months. I hear entirely too many CW ops using the term "LID," and I just wonder if they really know what they are saying? According to the *ARRL Operating Manual*, in the section "Abbreviations for CW Work," a LID is "a poor operator." Well, I must ask a question: Just what is a "poor operator?"

I'm sure if I asked this question of ten CW operators, I would get a variety of responses. What I've been hearing typically is on a DX station's frequency, someone who thinks *his* opinion of what *he* is hearing constitutes a "poor operator." Well, we all know about "opinions." . . . They are like the nose on your face; everyone has one and they are not all the same. If a DX station operator is less than specific about where he is listening (such as "up 2"), then some could think he is working "simplex" and listening on his own frequency. This is especially true if you just happen onto the frequency. Oh yes, yes . . . you *should* listen before you transmit on his frequency. However, let's not get carried away with jumping on that frequency saying "LID, LID, LID" either. What good does that do? All you have done is create more QRM and that is *wrong, wrong, wrong*.

I have made that mistake myself from time to time, and I would like to believe that I have been around in the game long enough to realize my mistake rather quickly—without being insulted by someone's "opinion" that I am a "poor operator." I guess that person who has been saying LID has never made a mistake in his life. Gee, I wish I could think of myself as *perfect*, but I'm smart enough to know that is definitely not the case. We strive to be the best we can be, but no one is perfect.

I remember one incident some time ago, early



This is CW champion, Chip, K7JA, who along with Ken, K6CTW, appeared on the Jay Leno show in May in a speed contest that featured CW pitted against cell-phone text-messaging (the CW ops won!). At this year's Dayton Hamvention® Chip wore the same costume he wore for the show. (All photos this month taken at Dayton and courtesy of Tom, K8CX)

one morning on 40 meters CW. There was a BV station that I wanted to work very badly. A station in Arizona worked him. It was just a bit late for East Coast propagation, but I have a better than average station for 40 and felt I had a good chance of working the BV. I called him and he came back with "QRZ," and I called again. He apparently was not hearing me that well, as he came back calling CQ again. The band was going and his signal was fading. I couldn't tell just when he stopped send-



Two CW top guns: Mike, KH6ND (left), and Jim, N6TJ.

*P.O. Box DX, Leicester, NC 28748-0249
e-mail: <n4aa@cq-amateur-radio.com>

The WAZ Program

10 Meter SSB

572.....JM2ABB

15 Meter SSB

619.....JH1CTQ

15 Meter CW

327.....HL5QY

20 Meter RTTY

56.....RW4WZ

6 Meters

71.....EH9IB

160 Meters

208.....DL2KQ (31 zones) 211.....UA3AB (36 zones)
209.....RX9FM (33 zones) 212.....UA6LV (40 zones)
210.....WK3N (32 zones)

All Band WAZ

SSB

4964.....CE4ETZ

Mixed

8359.....UA0ANW 8361.....DL6FCB
8360.....RU3DG

All CW

458.....DL3KOG 460.....RX9KA
459.....S57XX 461.....7N2JZT

RTTY

158.....WE0Q

SSTV

004.....HA5UK

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and \$1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, 17 Green Hollow Rd., Wiggins, MS 39577. The processing fee for all CQ awards is \$6.00 for subscribers (please include your most recent CQ mailing label or a copy) and \$12.00 for nonsubscribers. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a CQ checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

ing, and I called him again. When I finished, he was calling CQ again. That station in Arizona who had worked him earlier came on frequency and gave my call followed by LID LID. He didn't give his call, but I recognized the signal and his fist. I knew who it was. Frankly, I was insulted by his comment. He was considerably closer to BV than I was, hearing him better than I was, yet he couldn't give me the benefit of the doubt and give me a chance to work the station.

What did I do? Well, I just reached over and turned off the radio. I wasn't going to justify his comment by further debate. Now I ask you: Who was the LID in this case? Well, I have my opinion and I think you can figure out what it is.

I suppose there could be some justification for the use of the term LID, but I for one find it offensive and would have to think very seriously before using it, especially on the air. Perhaps at least some of those who would resort to such

5 Band WAZ

As of June 1, 2005, 679 stations have attained the 200 zone level and 1456 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:
W7SX

The top contenders for 5 Band WAZ (zones needed, 80 meters):

N4WW, 199 (26)	WA0QH, 199 (26)
W4LI, 199 (26)	N4PQX, 199 (26)
K7UR, 199 (34)	JA5IU, 199 (2)
W0PGI, 199 (26)	N6HR/7, 199 (37)
W2YY, 199 (26)	CT3DL, 199 (26)
VE7AHA, 199 (34)	N0IJ, 199 (21)
IK8BQE, 199 (31)	VE3XN, 199 (26)
JA2IVK, 199 (34 on 40m)	EA5BCX, 198 (27, 39)
IK1AOD, 199 (1)	G3KDB, 198 (1, 12)
DF3CB, 199 (1)	KG9N, 198 (18, 22)
GM3YOR, 199 (31)	JA1DM, 198 (2, 40)
VO1FB, 199 (19)	9A5I, 198 (1, 16)
KZ4V, 199 (26)	K5PC, 198 (18, 23)
W6DN, 199 (17)	K4CN, 198 (23, 26)
W6SR, 199 (37)	G3KMQ, 198 (1, 27)
W3NO, 199 (26)	N2QT, 198 (23, 24)
HB9DDZ, 199 (31)	OK1DWC, 198 (6, 31)
RU3FM, 199 (1)	W4UM, 198 (18, 23)
HB9BGV, 199 (31)	US7MM, 198 (2, 6)
N3UN, 199 (18)	K2TK, 198 (23, 24)
OH2VZ, 199 (31)	K3JGJ, 198 (24, 26)
W1JZ, 199 (24)	W4DC, 198 (24, 26)
W1FZ, 199 (26)	N4XR, 198 (22, 27)
SM7BIP, 199 (31)	RU3DX, 198 (1, 6)
PY5EG, 199 (23)	OE2LCM, 198 (1, 31)
SP5DVP, 199 (31 on 40)	HA1RW, 198 (1, 31)
W8AEF, 199 (40)	WK3N, 198 (23, 24)
K8RR, 199 (26)	HA9RT, 198 (1, 31)
UU5JR, 199 (4)	W9XY, 198 (22, 26)
W8GF, 199 (22)	KZ2I, 198 (24, 26)
N4NX, 199 (26)	RX9TX, 198 (2, 6)
N4MM, 199 (26)	F5NBU, 198 (19, 31)
EA7GF, 199 (1)	

The following have qualified for the basic 5 Band WAZ Award:

VE6LB (188 zones)	RU3DG (170 zones)
JA2DCN (184 zones)	UY5EG (170 zones)
WA0QII (199 zones)	

****Please note: Cost of the 5 Band WAZ Plaque is \$80 (\$100 if airmail shipping is requested).**

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and \$1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, 17 Green Hollow Rd., Wiggins, MS 39577. The processing fee for the 5BWAZ award is \$10.00 for subscribers (please include your most recent CQ mailing label or a copy) and \$15.00 for nonsubscribers. An endorsement fee of \$2.00 for subscribers and \$5.00 for nonsubscribers is charged for each additional 10 zones confirmed. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a CQ checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

actions will read this and think before they use the word LID the next time they are tempted to do so.

DXpeditions of Note

CY9SS on St. Paul Island back in June/July turned a bit nasty for the team in the early days of the DXpedition. They had a rough landing in stormy weather and lost some gear—a generator and some tower sections—in the water. Then Krassy, K1LZ, suffered a broken leg when a 48-foot tower he was on fell due to a broken guy rope. Thankfully, it fell into a grassy area or it would have been even worse. Even so, the tower

W4RT
Electronics

**Proven
Performance**

YAESU **FILTERS** ICOM
FT-817 • FT-857 • FT-897 • IC-703 • IC-718



CW: \$115 • SSB \$130
W4RT can install for you, ask!

Antenna BOSS & Antenna BOSS II The BEST Motorized Antenna Controllers

Antenna BOSS II interfaces directly with ICOM IC-706 series of radios for automatic tuning of motorized antennas from Hi-Q Antennas, High Sierra Antennas, & Tarheel Antennas, & others that draw < 750 mA while running. Tuning is activated by pressing the IC-706 Tune button.



The BOSS II can be interfaced with many other radios from ICOM, Yaesu, and Kenwood. The BOSS II provides coverage capability from 6-160 m, even for Yaesu radios. Interfacing with non-ICOM radios requires the use of an appropriate One-Touch Tune module. BOSS II features dynamic motor braking, motor stall sensing & braking, user selectable stall current sensing, no special sensors in antenna, programming or computer are required. The Antenna BOSS makes essentially any motorized antenna "look like" the Yaesu ATAS-100/120 to the FT-100/D, FT-847, FT-857, and FT-897 radios. Use the radio's own TUNE button for automatic tuning the way it was intended!

Arguably the Most Important Accessory for Your FT-817, TS-50, IC-706, and MORE!



The bhi, Ltd. DSP Module provides GREAT noise cancellation technology. Has 4 levels of noise cancellation, single button operation, & low-distortion of audio signals. Dynamically-adaptive neural-network technology provides truly astounding improvement.

\$129 DIY
W4RT Install Available

ORDER ON-LINE at www.W4RT.com
or ask your favorite Dealer

Phone Orders Only: 866.535.4442 • GigaParts Shipping Additional

W4RT Electronics, One-Touch Tune, Antenna BOSS II, and Antenna BOSS are Trademarks of Cybernet Development Corp., Huntsville, AL. © Copyright 2005. All Rights Reserved. Prices & Specifications Subject to Change with Notice. All other trademarks are the property of the respective trademark holder.

T-Shirts for the CW Enthusiast



Perfect for the CW operator or enthusiast!

Shirt includes small full-color graphic on front and large graphic on the back.

This custom designed T-Shirt is available in Tan color only. Sizes include Large and Extra Large.

Payment by personal check or money order only; please specify size when ordering

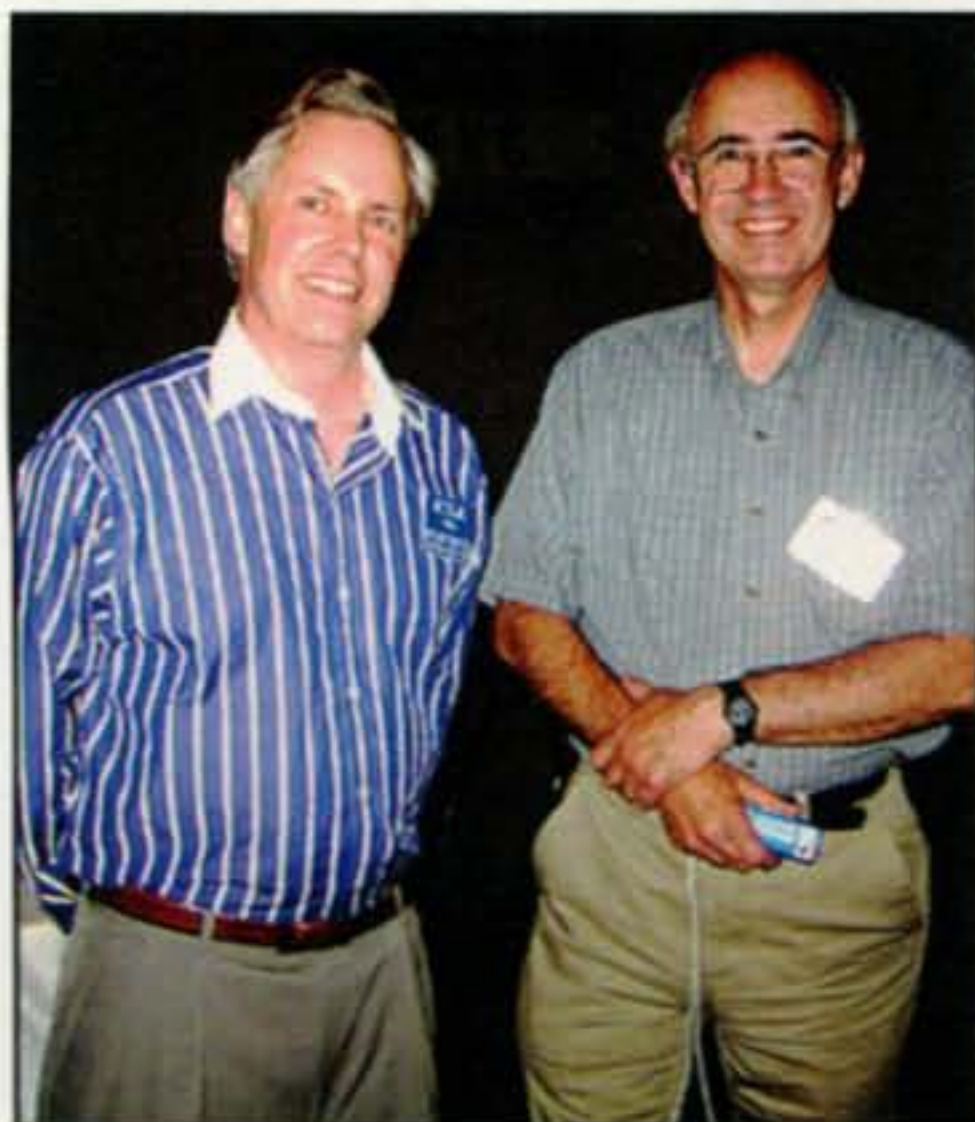
(770) 487-4925

Ham T-Shirts by WA4QKV

P.O. Box 266, Tyrone, GA 30290

www.jimwhitlockart.com

e-mail: wa4qkv@aol.com



Tim, K3LR (left), with Charles, K3WW. Both could be seen evenings at the contest hospitality suite at the Crowne Plaza hotel.

fell on Krassy and broke his left leg in four places. He was air lifted out to a hospital in Nova Scotia where surgery repaired the damage. The operation is continuing as this is being written in mid-June, with three additional operators having arrived on the island. They are busy working the pile-ups on several bands/modes. CY9 ranked #70 on *The DX Magazine's* Most Wanted list 2004. With a month-long operation by this group, it is sure to drop at least several places on the 2005 list.

The much anticipated DXpedition to Peter I was postponed earlier this year. It is still "on the table," however, and the team released the following announcement on June 9th.

Peter I DXpedition, 3Y0X

from Ralph, KØIR, and Bob, K4UEE

The Peter I DXpedition is scheduled for early 2006. We are pleased to announce that contracts have been signed with two Chilean



Left to right: National Contest Journal Editor Carl, K9LA; his wife Vickie, AE9YL; and Jim, W4PRO.

QSL Information

3D2NA via JK1FNL
3D2SE via ZL3TE
3DA0CF via K5LBU
3DA0JR via ZS6JR
3DA0KDJ via W5KDJ
3G1P via CE6TBN
3G2D via CE6TBN
3V8BB via I5JHW
3V8SM via HA5FA
3W3A via JA6UHG
3Z1LH via SP1KNM
3Z1VD via SP1PBW
4F3CV/1 via HB9CXZ
4K60K via 4K4K
4K7Z via UA3FDX
4KR60S via 4J5A
4L/UA4WHX via UA4WHX
4L4CH via LZ1OT

4L7BO via DL7BO
4L8A via OZ1HPS
4N2Z via YU7KW
4U1UN via HB9BOU
4X/PA3AJW via PA3AJW
4X/PA3BMQ via PA3BMQ
5B/AJ2O via RA3AUU
5B/G3VMK via G3VMK
5B4AGI via N4JR
5B4AHQ via GØNMG
5B4AHS via RA3AUU
5H9KR via KF9TC
5R8GT/P via DK8ZD
5T0JL via ON8RA
5T5BAB via JA1BAB
5T5HHN via JL1HHN
5V7BB via W2FUI
6O0JT via VA6JWT

7Q7WW via KC4D
7Q7YL via MØJMP
7V2SI via OM3CGN
7Z1SJ via EA7FTR
8P9AM via VE3DZ
8Q7C via EC1KW
8Q7EX via DL2NBH
8Q7NB via DH3NB
8R1K via EA4BQ
8R1RPN via EA4BQ
8S6KOS via SM6YOU

(The table of QSL Managers is courtesy of John Shelton, K1XN, editor of "The Go List," 106 Dogwood Dr., Paris, TN 38242; phone 731-641-4354; e-mail: <golist@golist.net>.)

companies to provide a vessel and helicopter for the DXpedition to Peter I, Antarctica during January/February 2006.

The actual dates of the operation will be released on or about September 1, 2005, but the general time frame will be between January 16 and the end of February 2006. The actual dates depend on the vessel scheduling and weather considerations.

It is the team's objective to be at Peter I for a minimum of two weeks, with the actual operating time to be determined by weather and setup time. Because of the likelihood of it being a very long time before Peter I will be activated again, we have set some very high QSO goals. Nine stations will be established on the island and QRV on all bands 160–10 meters on the most common communications modes.

Most of the members of the 2005 team will participate in the 2006 DXpedition, but there are several slots available for new team members. Contact either K4UEE (mallphin@aol.com) or KØIR (rfedor@cloudnet.com) for more information. This adventure is not for the faint-hearted!

Most of the sponsors from the 2005 attempt are on board for 2006; see <<http://www.peterone.com>> for a complete list.

This is a very expensive project. Although the team will be putting up approximately 70% of the DXpedition's expenses, additional contributions from sponsors are being sought. Contributions by check or PayPal are very much appreciated. It is easy; just go to <<http://www.peterone.com>>. Thanks for your support!

We will be posting DXpedition updates periodically, so please check the website often.

We are looking forward to upcoming DXpeditions to Kure, KH7K in the September/October timeframe, as well as the Glorioso, FR/G DXpedition set for the October/November timeframe. Interesting to note is that Kure ranked #10 on the Most Wanted Survey for 2004 and Glorioso was at #14. Both of these

operations will certainly generate huge pile-ups as DXers worldwide try to add them on bands/modes to their worked lists. We wish both DXpeditions success and safe travel.

You may notice the absence of the WPX Award Program and WPX Honor Roll boxes this month. Norm, WN5N, the WPX Award Manager, had some computer problems, so look for them in the next several columns.

Until next time, enjoy the chase and Have Fun!

73, Carl, N4AA

CQ DX Awards Program

SSB

2457.....WU8P	2460.....W8SQ
2458.....F6HJM	2461.....WV1K
2459.....RA1AOB	2462.....WB4GMR

CW

1067.....WA2VQV	1069.....JA2EPW
1068.....RA1AOB	1070.....WV1K

SSB Endorsements

320.....F6HJM/326	310.....VE7SMP/310
310.....WB4GMR/317	300.....RA1AOB/300

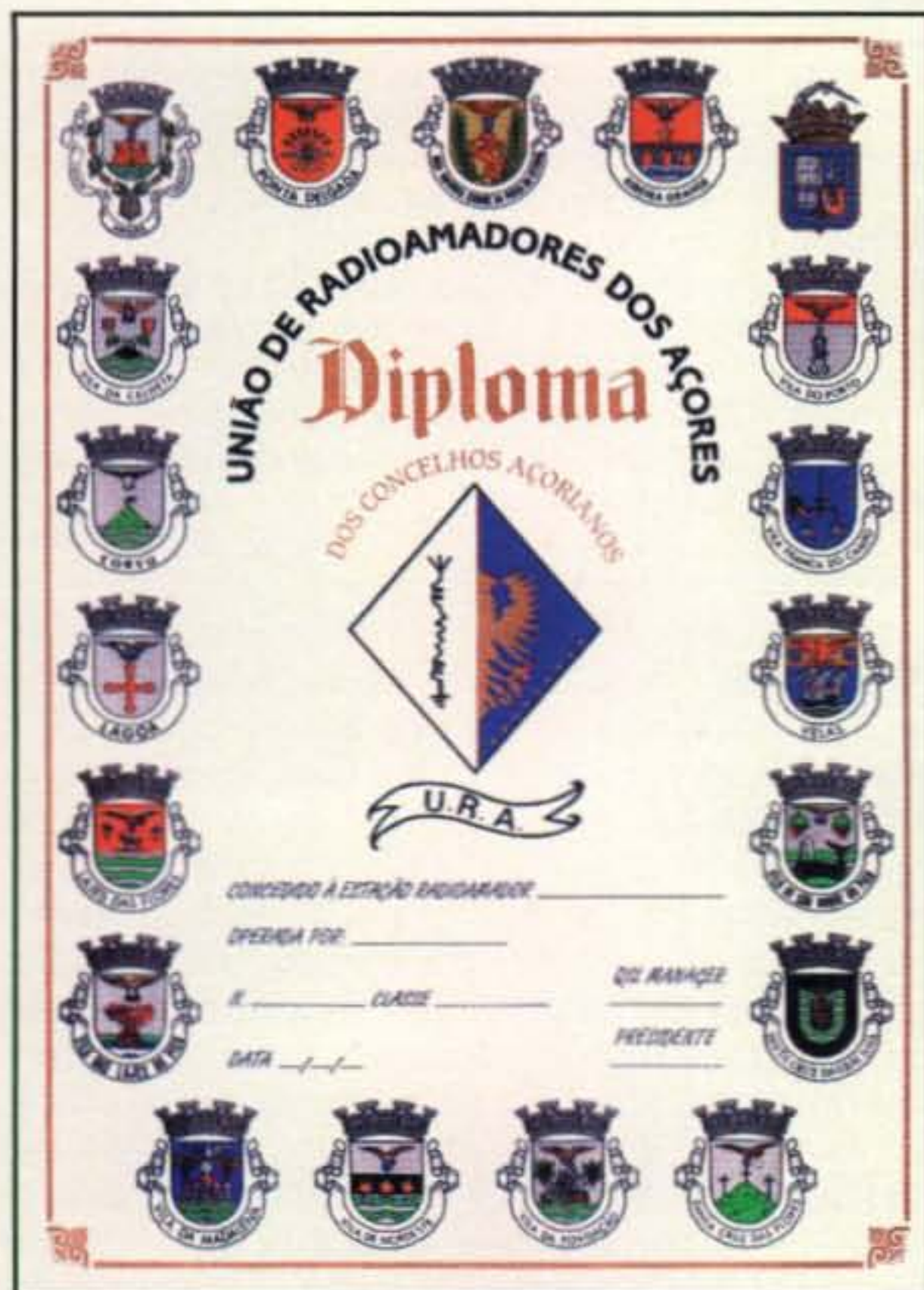
CW Endorsements

320.....N7RO/334	150.....WV1K/153
300.....RA1AOB/300	3.5/7.....WA2VQV
250.....WA2VQV/260	28 MHz.....WA2VQV
200.....4Z5SG/210	

The basic award fee for subscribers to CQ is \$6. For non-subscribers, it is \$12. In order to qualify for the reduced subscriber rate, please enclose your latest CQ mailing label with your application. Endorsement stickers are \$1.00 each plus SASE. Updates not involving the issuance of a sticker are free. All updates and correspondence must include an SASE. Rules and application forms for the CQ DX Awards may be found on the <www.cq-amateur-radio.com> website, or may be obtained by sending a business-size, self-addressed, stamped envelope to CQ DX Awards Manager, Billy Williams, N4UF, Box 9673, Jacksonville, FL 32208 U.S.A. Currently we recognize 335 active countries. Please make all checks payable to the award manager.

DX Awards

This month we cover awards from around the world, plus present biographical sketches of James Martin, Jr., K4YFH, USA-CA All Counties #1112 and Robert C. Moore, G3SPU, USA-CA All Counties #1113. We begin with an award from the Azores.



Contact stations in different islands/counties of the Azores, a small island chain that is part of the territory of Portugal, to earn the Azores Counties Award.

The Azores Counties Award. Here's a counties award for a small island chain, a part of the territory of Portugal. There are nine island groups, each of which contains two or more counties. Each group has a different prefix, so if you work a CU7, the list below shows that the county is either Faial or Horta. You will have to examine the address on the card to determine precisely which county the station is in. The award certificate has a border of the official coat of arms of each of the 19 counties. It's a handsome, full-color award definite worthy of framing.

Contact stations in different islands/counties of the Azores on or after March 28, 1995. There are three classes: Bronze for 15 counties, Silver for 17 counties, and Gold for all 19 counties. All bands and modes okay. Apply with cards or copies of the cards plus fee of 3 Euros for URA members; 6 Euros for

USA-CA Special Honor Roll

Allen Miller, W8LKD
USA-CA All Counties #1120
May 12, 2005

Shari Bird, KBØMHH
USA-CA All Counties #1121
May 12, 2005

Bob Schrader, AA9GZ
USA-CA All Counties #1122
May 21, 2005

USA-CA Honor Roll

500	2000
WB3AVD.....3349	KI6PG.....1311
K8XF.....3350	WA8LKD.....1312
WA8LKD.....3351	KBØMHH.....1313
KBØMHH.....3352	AA9GZ.....1314
AA9GZ.....3350	
1000	2500
WA8LKD.....1693	KI6PG.....1232
KBØMHH.....1694	WA8LKD.....1233
AA9GZ.....1695	KBØMHH.....1234
	AA9GZ.....1235
1500	3000
KI6PG.....1416	WA8LKD.....1142
WA8LKD.....1417	KBØMHH.....1143
KBØMHH.....1418	AA9GZ.....1144
AA9GZ.....1419	

The total number of counties for credit for the United States of America Counties Award is 3077. The basic award fee for subscribers is \$6.00. For nonsubscribers it is \$12.00. To qualify for the special subscriber rate, please send a recent CQ mailing label with your application. Initial application may be submitted in the USA-CA Record Book, which may be obtained from CQ Magazine, 25 Newbridge Road, Hicksville, NY 11801 USA for \$2.50, or by a PC-printed computer listing which is in alphabetical order by state and county within the state. To be eligible for the USA-CA Award, applicants must comply with the rules of the program as set forth in the revised USA-CA Rules and Program dated June 1, 2000. A complete copy of the rules may be obtained by sending an SASE to Ted Melinosky, K1BV, 12 Wells Woods Road, Columbia, CT 06237 USA. DX stations must include extra postage for airmail reply.

nonmembers in the Azores, Madeira, and Portugal; 8 Euros for nonmembers in Europe, and 10 Euros for all others. The address is URA, Diploma dos Concelhos Dos Acores, P.O. Box 140, 9701-902 Angra do Heroismo, Azores, Portugal.

Counties: CU1—Island of Santa Maria, Vila do Porto; CU2—Island of Sao Miguel, Ponta Delgada, Ribeira Grande, Vila Fraca do Campo, Lagoa, Nordeste, Povoacao; CU3—Terceira Island, Angra do Heroismo, Praia da Vitoria; CU4—Graciosa Island, Santa Cruz da Graciosa; CU5—San Jorge Island, Sao velas, Calheta; CU6—Island of Pico, Madalena, Lajes, Sao Roque; CU7—Island of Faial, Horta; CU8—Island of Flores, Santa Cruz, Lages; CU9—Island of Corvo, Vila Nova do Corvo.

Denmark's Bornholm Island Award. Bornholm Island is located in the western Baltic sea between the coasts of Denmark and Poland. It carries its own IOTA designation, EU-030, and is not too difficult to work under normal conditions, and

*12 Wells Woods Rd., Columbia, CT 06237
e-mail: <k1bv@cq-amateur-radio.com>

James Martin, Jr., K4YFH, USA-CA All Counties #1112 (1/29/2005)

I have been involved in radio all my life. My father owned a radio repair shop. I repaired my first radio when I was six years old.

In 1949 my father and I were introduced to ham radio by W3INB, who later became W4LSH. We enjoyed listening to him talk on the radio. He moved away, but the bug was still there. We often talked about learning the code, but we did not study for any ham license at the time.

In 1952 I was selling *Grit* newspapers and passed a house that had a big antenna in the back yard. I stopped and sold the man a paper. Then I asked about his antenna. He said he was a ham radio operator and his call was W4VOX. I told him about my father and me being interested in ham radio. He invited us to visit him. I ran all the way home to tell daddy what I had found. Later on we went for a visit.

Daddy and I started learning Morse code. I was not as committed, but Daddy kept studying. He passed the Novice class test

and became WN4EJR, and later W4EJR. I kept studying off and on. Finally I was able to copy code, and in April 1960 I received a code proficiency certificate at 10 wpm from W1AW. Then I took the Novice test, and in June 1960 I received my KN4YFH call. In July 1960 I passed the General class test, and in September 1960 I received my K4YFH call.

Now I was able to operate on the phone bands. On the air I met two brothers, K4CDG and W4HKF, who were talking to one another. I started talking with them, and W4HKF told me he had a daughter who was a ham. Her call is W4URZ. She and I started talking and soon met in person. We courted on the radio. In June 1963 we were married. We have four children, two girls and two boys. The boys both have licenses and are KB4PJY and KG4ABX. We have six grandchildren.

If our fathers, W4EJR and W4HKF, and my wife's uncle, K4CDG, were still living

there would be 19 hams in our family. My brothers, sister, one brother-in-law, one sister-in-law, and several of their children and grandchildren all have their ham license. I think we might hold a record for the most hams in one family.

About 1993 I was working CW when a county hunter needed Robeson County, North Carolina on phone. We went to 14.336 and made a contact. I worked so many counties on that frequency that I then started county hunting. I have enjoyed talking to every county in the United States. Recently I checked and discovered that I had all counties in the U.S. confirmed—mixed, phone and CW.

I would like to thank all of those who helped me achieve this award, and especially N4CD, KK7X, and KC1NA. Also a big thanks goes to KZ2P for being net control and helping me in this endeavor. I'm still county hunting!

—Jim, K4YFH



Work stations on Bornholm Island, located in the western Baltic Sea and Islands On The Air EU-030, to earn the Bornholm Island Award.

Stations Award are sponsored by the Diamond DX Club. Perhaps some of this fascination can be traced back to the 1920s, when Italy combined polar exploration and aircraft in a daring expedition to the North Pole. This event is commemorated by the following new award. I believe there is a *Discovery* or *National Geographic* television show based on this trip, with excellent video of the trip and the rescue efforts.

The A.R.I. Section of Cassino sponsors the Arctic World Award in honor of the 1926 dirigible flight headed by Umberto Nobile, whose crash and rescue in the Arctic caught the attention of the world at that time. To earn the award you must provide proof of having contacted, after January 1, 1944, ten stations in at least three of the countries that extend north of the 60th latitude. The ten countries whose borders extend into the arctic are Alaska, Canada, Denmark, Faroe Islands, Finland, Greenland, Iceland, Norway, Russia, and Sweden.

All bands and modes okay. QSOs with ships, laboratories, and arctic bases (RAEM, U-POL, and Drifting Ice stations)

certainly not difficult during the annual Scandinavian Activity Contest or the IOTA (Islands On The Air) Contest.

Work Bornholm Island stations on or after January 1, 1960. Stations may be contacted on more than one band for award credit.

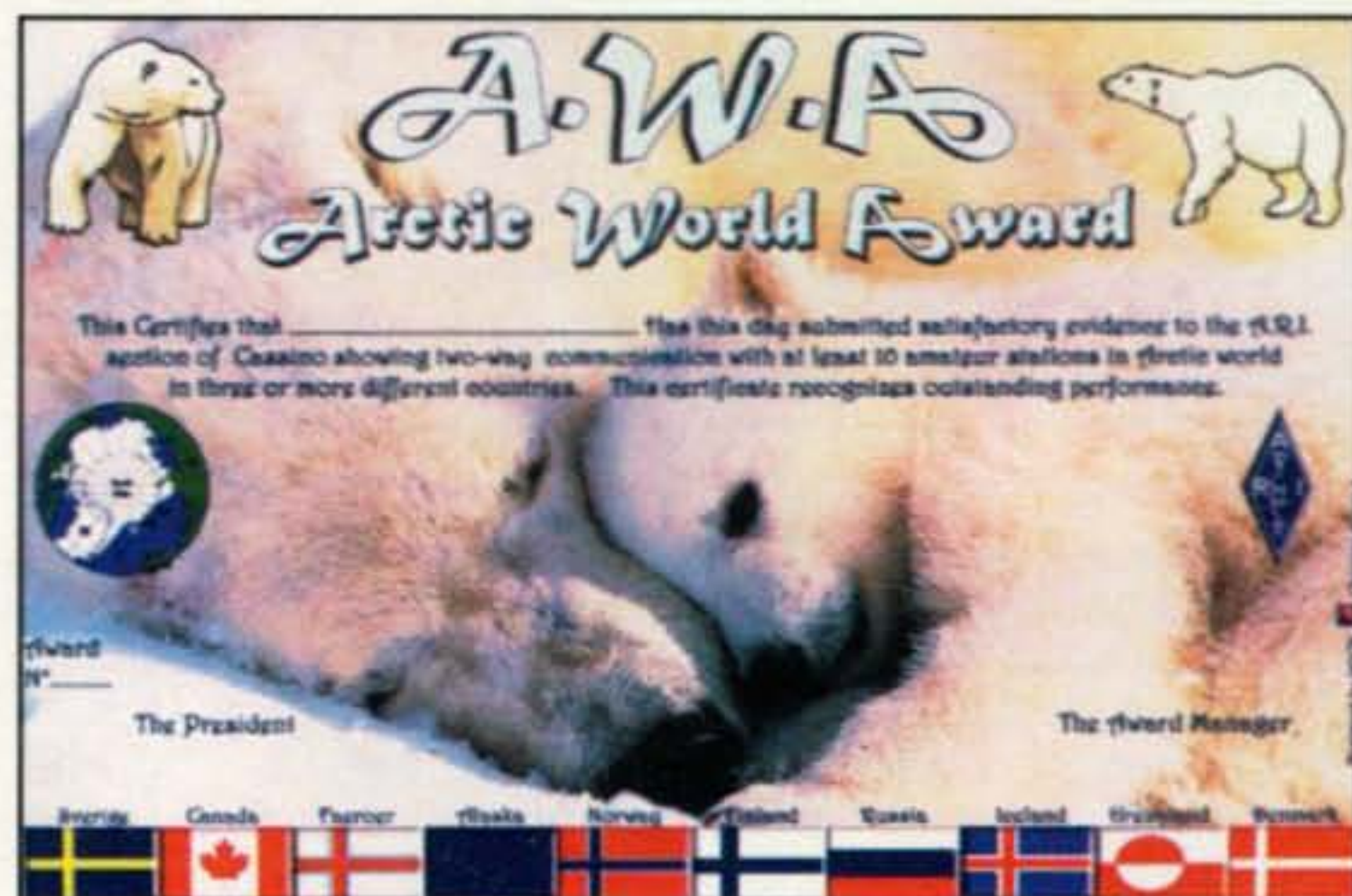
Class 1: LA, OZ, and SM contact five Bornholm Island stations. Other Europeans need three. the rest of world needs two.

Class 2: LA, OZ, and SM earn 12 points, Other Europeans need eight points, and the rest of the world needs five.

Points are awarded as follows: Contacts with Bornholm Island stations count 1 point; QSOs with club stations OZ4EDR, OZ4CHR, OZ4HAM, OZ5HAM, and OZ3BAU count five points.

Send GCR (General Certification Rule) list and fee of 10 IRCs to: Rose Hansen, OZ4DZ, Sigynsvej 49, DK-7000 Roenne, Denmark.

Italy's Arctic World Award. Several sponsors of awards from Italy are fascinated by the polar regions of the world. The Antarctica Award is sponsored by the Mediterraneo DX Club, and the Worked Antarctic Bases Award and Worked Antarctic



The A.R.I. Section of Cassino sponsors the Arctic World Award in honor of the 1926 dirigible flight headed by Umberto Nobile. To earn the award provide proof of having contacted ten stations in at least three of the countries that extend north of the 60th latitude.

MIKI 三木賞 AWARD



貴局は、卓越した通信技術を以って、当会が制定する規定を達成されました。よって、茲にその栄誉を称え之を賞します。

Amateur radio station * is hereby authorized MIKI award, namely he has a credit of our club "MIKI AMACHUAMUSEN AINOUKAI".

CLASS _____ 三木アマチュア無線愛好会
STATION _____ President _____
NAME _____ 会長 _____
TOTAL No. _____
CLASS No. _____ AWARD MEN _____
DATE _____

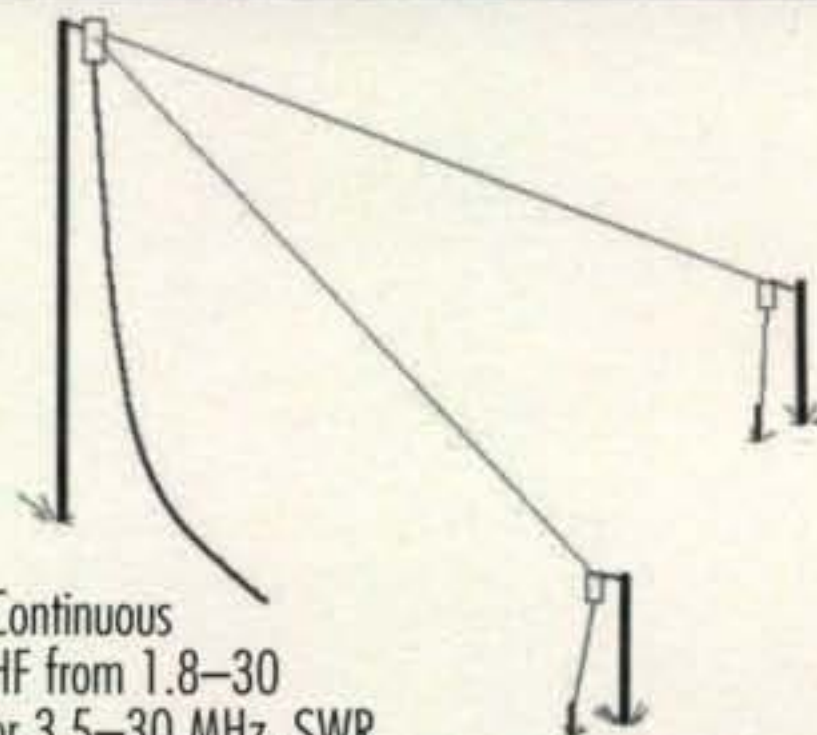
To earn the Miki Award contact stations in the city of Miki, Japan (a card from any JARL Miki ARC club member may be used to substitute for any one missing card). This award is available only to stations outside of Japan.

are equally valid. GCR list is accepted, but the sponsor reserves the right to request any cards listed. Send list and fee of 10 Euros or \$US15 to: Nuccio Meoli, I7YKN, P.O. Box 66, I-73010 Porto Cesareo (LE), Italy (e-mail: <nucciomeoli@libero.it>; on the web: <<http://www.arcticworldaward.net>>.

Japan's Miki Award. This award certificate features an interesting bird image and is actually not too difficult to earn, since Miki club members are needed only to substitute for a missing card in the relatively easy requirements list. Note, too, that Miki club members generally have a similar bird image or label on their QSL cards, making the cards easy to spot.

The award was created to publicize the "City of Hardware" throughout the world and is available only to stations outside of Japan. There are no time limitations. Only one card from each station in Miki may be used. A card from any JARL Miki ARC club member may be used to substitute for any one missing card. Note the member club number on your application. The application form is on the club's website (<http://www2.117.ne.jp/~jm3txq/maa/>).

BROADBAND TERMINATED VEE BEAM



Continuous HF from 1.8-30 or 3.5-30 MHz, SWR <2:1 on all frequencies. Gain, directivity, and 6 meters too! 250-watt power rating. \$239/\$249.

TEN-TEC

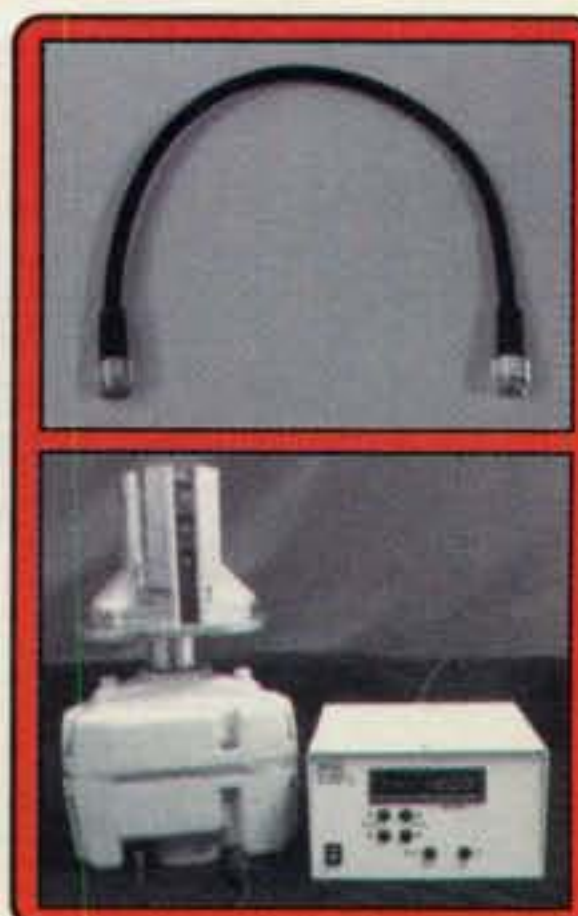
1185 Dolly Parton Parkway
Sevierville, TN 37862
Sales Dept: 800-833-7373
Monday - Friday 8:00 - 5:30 EST
We accept VISA, Mastercard, American Express, and Discover

Office: (865) 453-7172 • FAX: (865) 428-4483
Repair Dept.: (865) 428-0364 (8 - 5 EST)



**IN THE PROCESS OF DESIGNING AN ARRAY?
OR MAYBE YOU'RE NOT SURE WHERE TO START.**

**GIVE US A CALL, OUR FILES ARE FILLED WITH HUNDREDS OF
PROVEN DESIGNS TO PULL FROM...OR WE WILL BUILD A
CUSTOM ARRAY FOR YOUR SPECIFIC NEEDS.**



**TOTAL SYSTEM
SOLUTIONS**

H-FRAME ASSEMBLIES

CABLE ASSEMBLIES

2 & 4 PORT DIVIDERS

AZ / EL PACKAGES

**We're M2,
and we're ready to get
serious on your antenna
system, tower and
feedline!**

**M2 ANTENNA SYSTEMS, INC. 4402 N. SELLAND AVE. FRESNO, CA 93722
(559) 432-8873 FAX (559) 432-3059 WWW.M2INC.COM**

On-Line Ordering is a snap. Just grab your basket and go shopping!





On the Cover

Guy Gustafsson, OH0NH, and Sture Henriksson, OH0JFP, look up at one of the two rotating towers at OH0Z, one of several dedicated contest stations on Finland's Åland Islands. The shack in the foreground is "the shack," which despite its apparent small size, generated big enough signals in last October's CQ World-Wide DX Contest SSB weekend to snag third place in Europe in the Single-op/Assisted category for OH0Z and operator OH5DX.

The station is owned by the Radiosporting Team, a group of three Finnish hams from the Helsinki area, OH5DX, OH7JT/OH1JT, and OH2MA. All three are accomplished contesters and members of Contest Club Finland, or CCF, of which OH2MA is president and OH5DX is secretary. OH5DX also represented Finland, along with OH1NOA, at the 2000 World Radio Teamsport Championship (WRTC) in Slovenia, in which they finished fifth. OH0Z shares its hilltop location with the Ålandia Contest Team's VHF/UHF contest station, OH0AZ. According to SM0JHF, who wrote this month's cover story, most of the local OH0 hams are more interested in contesting on VHF than on HF.

More information about life and ham radio on the Åland islands can be found in SM0JHF's article, "A Tale of Two Islands," beginning on page 13. Complete results of the 2004 SSB portion of the CQ World-Wide DX Contest begin on page 18.

(Cover photo by
Henryk Kotowski, SM0JHF)

Robert C. Moore, G3SPU, USA-CA All Counties #1113 (2/17/2005)

I was first licensed in 1963. My main interest is on the HF bands, mostly chasing DX and ragchewing. My equipment for those pursuits is a Kenwood TS-950S, FL2100B linear amplifier, and an Explorer antenna on a 60-ft. crank-up tower.

I did not actually *discover* county hunting. I was persuaded on occasion by Eddie, G4KHG. It was on his third try in 1990 that I took it up. Initially believing it to be impossible to collect all the counties, I've now proven that to be wrong—hi.

Eddie lives way up country from me, and several years ago we arranged to meet at a hamfest in Harrogate, Yorks. It was very interesting, as I met Eddie for the first time, and also Doug, G5PQ, USA-CA All Counties #758; Ken, G3YKR; and Hollis and family, KC3X, all county hunters.

The biggest challenge is when one gets to only a few needed counties. It became difficult. Prior to Christmas 2004 I phoned Eddie for help. He came to my rescue and put a message on the forum regarding my last five needed ones. The offers of help I received were unbelievable, with several guys offering to travel to counties I needed.

A very big thank you to Gerry, W0GXQ, who gave me my very last one, Ransom, North Dakota. I can't forget Gerry, KK0JX (ex-KA0LJO); Butch, WY0A; Jim, WA7SLD; and Bill, KD7KST, who were also very helpful to me. My thanks, too, to all the mobiles I contacted over the 14 years of county hunting. A special thanks to Eddie, who over the years kept telling me "stick with it, Bob," which I did. It paid off at the end of a very long stint.
—Bob, G3SPU



Contact administrative areas of the Ukraine (there are 758 such areas, and the basic award is issued for proof of having contacted at least 100 of them) to earn the URDA Award.

Class EX-DX (Extra DX)—complete both of the following requirements:

1. Using three different HF bands, contact JA stations in three different JA call areas, one per band.

2. Using three different HF bands, contact JA3 stations, one per band. (Valid prefectures in the third call area are Osaka, Kyoto, Hyogo, Nara, Wakayama, and Shiga.)

Class J-DX (Junior DX)—satisfy only condition number one above.

When applying for Class EX-DX, if you have already earned Class J-DX, then you should indicate the serial number on your application and complete requirement 2.

Send GCR list and fee of \$US6 or 8 IRCs to: Yukio Miyahara, JK3TJN, 3-15-20, Midorigaoka-higashi, Miki, Hyogo 673-0533, Japan.

The URDA (Ukrainian Districts) Award. Here's a spectacularly colorful and interesting award that will keep you busy with your collection of Ukraine QSLs now and for years into the future. That's because there are over 700 different valid administrative areas in that country, although the basic award is probably the one most will achieve. The website of the sponsor, the Ukraine ARL, at <http://uarl.com.ua/urda/> includes the official list of valid administrative areas, and you can download it into a text file and use this to keep track as you sort your cards. The award should be in place for years to come, which will be necessary given the scope of the higher levels of endorsements.

Contact administrative areas of the Ukraine since August 24, 1991. As of January 1, 2005 there are 758 such areas, and the basic award is issued for proof of having contacted at least 100 of them. There are endorsements for 200, 300, 400, 500, 600, 700, and all 758 areas. The top-level award is a plaque.

Separate awards are issued for all CW, SSB, Digital, Mixed, single or multiple bands, VHF, and WARC bands. Cards obtained for reporting beacon signals are not valid for the award. Send GCR list of administrative areas and fee of \$US10 to: Vladimir A. Stepanenko, P.O. Box 28, Chernihiv-postamt, 14000, Ukraine.

Looking for publicity to promote your club's award? Send me the details and let's see what can be done to put the rules in front of the thousands of CQ readers.
73, Ted, K1BV

August Conditions

A Quick Look at Current Cycle 23 Conditions

(Data rounded to nearest whole number)

Sunspots

Observed Monthly, May 2005: 43

Twelve-month smoothed, November 2004: 35

10.7 cm Flux

Observed Monthly, May 2005: 100

Twelve-month smoothed, November 2004: 102

Ap Index

Observed Monthly, May 2005: 20

Twelve-month smoothed, November 2004: 14

Late August and Early September are a difficult time of year for which to make accurate band predictions, because conditions can change drastically from day to day. On many days typical summertime conditions will continue much as they were during June and July. On the other days conditions may sound typically fall-like, with somewhat higher daytime usable frequencies and somewhat lower nighttime usable frequencies. When you add *equinoctial* conditions that can begin as early as late August, we often experience optimum openings between the Northern and Southern Hemispheres on the one hand, but periods of active to stormy conditions on the other.

Since this is a period of transition, this month's DX Propagation Charts cover only the one-month period from August 15th through September 15th, rather than the usual two-month period. Short-Skip Charts for use during this period appeared in last month's column.

Despite being near the end of solar cycle 23 with low solar activity, during the daylight hours good DX conditions should be possible on several bands—15, 17, and 20 meters. Expect signals on the 17- and 20-meter bands to peak approximately during the two-hour window immediately following sunrise and again during the late afternoon. These two bands, and to a lesser degree the 15-meter band, will see openings for DX throughout the daylight hours. Fairly good DX openings should occur along an arc extending across central Africa, Latin America, and into the far Pacific area. Peak conditions should occur during the afternoon hours, but an increasing number of earlier openings should be possible by early September.

Between sundown and sunrise 20 meters is expected to be the best DX band. However, with lower solar activity, the band in general will suffer compared with the past few years. Openings might be possible to many areas of the world, some with surprisingly strong signal levels. Until midnight

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for August 2005

Propagation Index.....	Expected Signal Quality			
	(4)	(3)	(2)	(1)
Above Normal: 2-5, 8, 12-17, 22-24, 29-31	A	A	B	C
High Normal: 1, 11, 18, 21, 25-28	A	B	C	C-D
Low Normal: 9-10, 19	B	C-B	C-D	D-E
Below Normal: 6-7	C	C-D	D-E	E
Disturbed: 20	C-D	D	E	E

Where expected signal quality is:

- A—Excellent opening, exceptionally strong, steady signals greater than S9.
- B—Good opening, moderately strong signals varying between S6 and S9, with little fading or noise.
- C—Fair opening, signals between moderately strong and weak, varying between S3 and S6, with some fading and noise.
- D—Poor opening, with weak signals varying between S1 and S3, with considerable fading and noise.
- E—No opening expected.

HOW TO USE THIS FORECAST

1. Find the *propagation index* associated with the particular path opening from the Propagation Charts appearing on the following pages.
2. With the *propagation index*, use the above table to find the expected signal quality associated with the path opening for any given day of the month. For example, an opening shown in the Propagation Charts with a *propagation index* of 3 will be good (B) on August 1st, excellent (A) from the 2nd through the 5th, fair to poor (C-D) on the 6th, etc.

good DX conditions should be found for openings toward Latin America, the far Pacific, and into Asia. You might even catch some activity on 17 or 15 meters. Fairly good conditions are also expected on 30, 40, 60, and 80 meters despite the high static level at times. Openings should be possible before midnight along an arc extending from northern Europe, through Africa, and into Latin America, the far Pacific, and Asia after midnight.

By late August it should be possible to work some DX on 160 meters during the hours of darkness. Conditions on this band—as well as on 40, 60, and 80 meters—will tend to peak just as the sun begins to rise on the *light*, or easternmost, terminus of a path.

For short-skip openings during August and early September, try 80 meters during the day for distances less than 250 miles, with 60 and 40 meters also usable. During the hours of darkness both 80 and 160 meters should provide excellent communications over this distance. For openings between 250 and 750 miles use 30 and 40 meters during the day for distances up to 500 miles, and 20 and 17 meters between 500 and 750 miles. At night, 40 and 30 meters should be the best bands for this distance until midnight, with 80 meters optimum from midnight to sunrise. Try 60 meters, as well. For openings between 750 and 1300 miles, try 20 and 17 meters, as they should provide optimum propagation during the hours of daylight. Optimum conditions should continue on these bands for this distance range after sundown and until midnight.

*P.O. Box 213, Brinnon, WA 98320-0213
e-mail: <cq-prop-man@hfradio.org>

RADIO VINTAGE RADIO DAZE & ELECTRONICS

Your Source For:

VACUUM TUBES • Classic Transformers • Components
Glass Dials & Other Reproduction Items • Books
Workbench Supplies • Refinishing Products • Tools
Contact Us Today For Our Free Catalog!

7620 Omnitech Place, Victor, New York USA 14564

Tel: 585-742-2020 • Fax: 800-456-6494

web: www.radiodaze.com • email: info@radiodaze.com

HYBRID-QUAD ANTENNAS MINI HF BEAMS

6 models, 2 & 3 element versions

T.G.M. Communications

121 Devon St. Stratford,

ON Canada N5A 2Z8

Tel. & Fax (519) 271-5928

www3.sympatico.ca/tgmc

AMPSEQUENCER

- Prevents amplifier relay's hot switching
- Quasi QSK operation for old amps w/o RF switches
- Outputs for Keys, Amplifier, PTT and pre-amp
- Inputs from Pedal or PTT, Keys, Rig send
- Ultra LOW current control requirement
- High output driving capability: 800mA @ 40V
- Adjustable buffer & delay from 10 to 80 milliseconds

Ideal for CW, RTTY, SSB, PACKET

\$39 <http://ampsc.netcertus.com> €30

Contesting in Africa Multi-Multi on the Equator

By Roger Western, G3SXW
& the VooDoo Contest Group

NEW
BOOK!



A compelling array
of contesting and
DXing experiences
from one of the most
unique operating
venues on earth -
the African continent.

Only
\$19.95
plus \$2 S & H

The personal stories told by the
world-renowned and witty personality,
Roger Western, G3SXW, make this
book a must have in any ham
radio library.

CQ Communications, Inc.

25 Newbridge Road, Hicksville, NY 11801

Order on line at

www.cq-amateur-radio.com;

FAX us at 516 681-2926

Call Toll-Free
800-853-9797

HOW TO USE THE DX PROPAGATION CHARTS

1. Use chart appropriate to your transmitter location. The Eastern USA Chart can be used in the 1, 2, 3, 4, 8, KP4, KG4, and KV4 areas in the USA and adjacent call areas in Canada; the Central USA Chart in the 5, 9, and 0 areas; the Western USA Chart in the 6 and 7 areas; and with somewhat less accuracy in the KH6 and KL7 areas.

2. The predicted times of openings are found under the appropriate meter band column (10 through 80 meters) for a particular DX region, as shown in the left-hand column of the charts. An * indicates the best time to listen for 160 meter openings.

3. The propagation index is the number that appears in () after the time of each predicted opening. The index indicates the number of days during the month on which the opening is expected to take place as follows:

- (4) Opening should occur on more than 22 days
- (3) Opening should occur between 14 and 22 days
- (2) Opening should occur between 7 and 13 days
- (1) Opening should occur on less than 7 days

Refer to the "Last Minute Forecast" at the beginning of this column for the actual dates on which an opening with a specific propagation index is likely to occur, and the signal quality that can be expected.

4. Times shown in the charts are in the 24-hour system, where 00 is midnight; 12 is noon; 01 is 1 A.M.; 13 is 1 P.M., etc. Appropriate daylight time is used, not GMT. To convert to GMT, add to the times shown in the appropriate chart 7 hours in PDT Zone, 6 hours in MDT Zone, 5 hours in CDT Zone, and 4 hours in EDT Zone. For example, 14 hours in Washington, D.C. is 18 GMT. When it is 20 hours in Los Angeles, it is 03 GMT, etc.

5. The charts are based upon a transmitted power of 250 watts CW, or 1 kw, PEP on sideband, into a dipole antenna a quarter-wavelength above ground on 160 and 80 meters, and a half-wavelength above ground on 40 and 20 meters, and a wavelength above ground on 15 and 10 meters. For each 10 dB gain above these reference levels, the propagation index will increase by one level; for each 10 dB loss, it will lower by one level.

6. Propagation data contained in the charts has been prepared from basic data published by the Institute for Telecommunication Sciences of the U.S. Dept of Commerce, Boulder, Colorado 80302.

August 15-September 15, 2005 Time Zone: EDT (24 Hour Time) EASTERN USA TO:

Reception Area	10 Meters	15 Meters	20 Meters	40/80 Meters
Western & Central	Nil	09-11 (1)	06-07 (1)	19-21 (1)
Europe & North		14-16 (1)	07-08 (2)	21-22 (2)
Africa			08-09 (3)	22-01 (3)
			09-10 (2)	01-03 (2)
			10-13 (1)	03-04 (1)
			13-14 (2)	21-23 (1)*
			14-16 (3)	23-01 (2)*
			16-17 (4)	01-03 (1)*
			17-18 (3)	
			18-19 (2)	
			19-20 (1)	
Northern Europe & CIS	Nil	09-11 (1)	06-07 (1)	20-22 (1)
			07-10 (2)	22-00 (2)
			10-12 (1)	00-03 (1)
			12-14 (2)	22-02 (1)*
			14-16 (3)	
			16-17 (2)	
			17-18 (1)	
Eastern Mediteranean & Middle East	Nil	11-13 (1)	06-07 (1)	19-21 (1)
		13-15 (2)	07-09 (2)	21-23 (2)
		15-16 (1)	09-14 (1)	23-00 (1)
			14-15 (2)	22-00 (1)*
			15-17 (3)	
			17-18 (2)	
			18-19 (1)	
			22-00 (1)	
West Africa	14-16 (1)	09-13 (1)	13-15 (1)	20-23 (1)
		13-14 (2)	15-16 (2)	23-02 (2)
		14-16 (3)	16-17 (3)	02-04 (1)
		16-17 (2)	17-18 (4)	22-02 (1)*
		17-18 (1)	18-20 (3)	
			20-21 (2)	
			21-23 (1)	
Central & East Africa	Nil	11-14 (1)	13-15 (1)	21-01 (1)
		14-16 (2)	15-17 (2)	
		16-17 (1)	17-19 (3)	
			19-20 (2)	
			20-21 (1)	

South Africa	12-14 (1)	08-11 (1)	07-15 (1)	21-23 (1)
		11-12 (2)	15-16 (2)	23-01 (2)
		12-14 (3)	16-17 (3)	01-03 (1)
		14-15 (2)	17-18 (2)	23-02 (1)*
		15-16 (1)	18-20 (1)	
			23-01 (1)	
Central & South Asia	Nil	17-19 (1)	07-08 (1)	05-07 (1)
			08-10 (2)	18-21 (1)
			10-11 (1)	
			20-23 (1)	
Southeast Asia	Nil	18-20 (1)	07-08 (1)	Nil
			08-10 (2)	
			10-11 (1)	
			18-22 (1)	
Far East	Nil	17-20 (1)	07-08 (1)	06-08 (1)
			08-10 (2)	
			10-12 (1)	
			17-19 (1)	
			19-21 (2)	
			21-23 (1)	
South Pacific & New Zealand	16-19 (1)	13-16 (1)	07-08 (1)	01-02 (1)
		16-18 (2)	08-11 (2)	02-03 (2)
		18-20 (1)	11-13 (1)	03-06 (3)
			18-21 (1)	06-08 (2)
			21-00 (2)	08-09 (1)
			00-02 (1)	04-08 (1)*
Australasia	17-19 (1)	16-17 (1)	06-08 (1)	03-04 (1)
		17-19 (2)	08-10 (2)	04-07 (2)
		19-20 (1)	10-12 (1)	07-08 (1)
			15-16 (1)	05-07 (1)*
			16-18 (2)	
			18-21 (1)	
			21-00 (2)	
			00-02 (1)	
Northern South America	13-15 (1)	08-12 (1)	06-07 (1)	19-20 (1)
	15-17 (2)	12-14 (2)	07-08 (2)	20-21 (2)
	17-18 (1)	14-16 (4)	08-10 (4)	21-04 (3)
		16-17 (3)	10-12 (3)	04-06 (2)
		17-19 (2)	12-15 (2)	06-08 (1)
		19-20 (1)	15-17 (3)	22-02 (1)*
			17-19 (4)	02-04 (2)*
			19-21 (3)	04-07 (1)*
			21-22 (2)	
			22-02 (1)	
Peru, Bolivia, Paraguay, Brazil, Chile, Argentina & Uruguay	14-16 (1)	08-10 (1)	06-08 (1)	21-23 (1)
	16-17 (2)	10-12 (2)	14-16 (1)	23-01 (2)
	17-18 (1)	12-15 (1)	16-17 (2)	01-03 (1)
		15-16 (2)	17-18 (3)	03-06 (2)
		16-18 (4)	18-20 (4)	06-07 (1)
		18-19 (2)	20-21 (3)	04-06 (1)*
		19-20 (1)	21-00 (2)	
			00-02 (1)	
McMurdo Sound, Antarctica	Nil	15-18 (1)	07-09 (1)	01-06 (1)
			16-18 (1)	
			18-19 (2)	
			19-21 (3)	
			21-23 (2)	
			23-01 (1)	

Time Zones: CDT & MDT (24 Hour Time) CENTRAL USA TO:

Reception Area	10 Meters	15 Meters	20 Meters	40/80 Meters
Western & Central	Nil	09-11 (1)	06-07 (1)	20-22 (1)
Europe & North		13-15 (1)	07-09 (2)	22-01 (2)
Africa			09-13 (1)	01-04 (1)
			13-15 (2)	22-02 (1)*
			15-16 (3)	
			16-17 (2)	
			17-19 (1)	
Northern Europe & CIS	Nil	10-13 (1)	06-07 (1)	20-02 (1)
			07-09 (2)	22-01 (1)*
			09-12 (1)	
			12-13 (2)	
			13-14 (3)	
			14-16 (2)	
			16-17 (1)	
			21-23 (1)	
Eastern Mediteranean & Middle East	Nil	10-15 (1)	07-14 (1)	20-21 (1)
			14-16 (2)	21-23 (2)
			16-18 (1)	23-00 (1)
			21-23 (1)	21-23 (1)*
West Africa	12-14 (1)	09-11 (1)	07-09 (1)	20-22 (1)
		11-14 (2)	13-15 (1)	22-01 (2)
		14-16 (1)	15-16 (2)	01-02 (1)
			16-19 (3)	23-01 (1)*
			19-20 (2)	
			20-22 (1)	

Central & East Africa	Nil	12-15 (1)	13-17 (1) 17-19 (2) 19-21 (1) 07-09 (1)	21-00 (1)
South Africa	11-14 (1)	08-10 (1) 10-14 (2) 14-15 (1)	07-09 (1) 12-15 (1) 15-18 (2) 18-20 (1) 22-01 (1)	20-21 (1) 21-23 (2) 23-01 (1) 22-00 (1)*
Central & South Asia	Nil	18-21 (1)	07-08 (1) 08-10 (2) 10-11 (1) 18-21 (1)	06-08 (1) 19-21 (1)
Southeast Asia	Nil	17-21 (1)	07-08 (1) 08-10 (2) 10-12 (1) 20-23 (1)	06-08 (1)
Far East	Nil	15-17 (1) 17-19 (2) 19-20 (1)	07-08 (1) 08-10 (2) 10-13 (1) 17-19 (1) 19-22 (1) 22-01 (1)	03-06 (1) 06-07 (2) 07-08 (1) 06-07 (1)*
South Pacific & New Zealand	16-19 (1)	12-15 (1) 15-19 (2) 19-21 (1)	07-08 (1) 08-10 (2) 10-12 (1) 12-14 (2) 14-18 (1) 18-21 (2) 21-23 (3) 23-02 (2) 02-07 (1)	00-01 (1) 01-03 (2) 03-06 (3) 06-08 (2) 08-09 (1) 02-04 (1)* 04-06 (2)* 06-07 (1)*
Australasia	16-19 (1)	14-16 (1) 16-19 (2) 19-21 (1)	00-07 (1) 07-08 (2) 08-10 (3) 10-11 (2) 11-16 (1) 16-18 (2) 18-20 (1) 20-00 (2)	02-04 (1) 04-07 (2) 07-09 (1) 04-05 (1)* 05-07 (2)* 07-08 (1)*
Northern & Central South America	12-15 (1) 15-17 (2) 17-18 (1)	08-09 (1) 09-12 (2) 12-14 (3) 14-17 (4) 17-18 (2) 18-19 (1)	06-07 (1) 07-08 (3) 08-10 (4) 10-12 (3) 12-16 (2) 16-17 (3) 17-19 (4) 19-21 (3) 21-22 (2) 22-02 (1)	19-21 (1) 21-23 (2) 23-03 (3) 03-06 (2) 06-07 (1) 21-00 (1)* 00-03 (2)* 03-06 (1)*
Peru, Bolivia, Paraguay, Brazil, Chile, Argentina, Uruguay	13-14 (1) 14-16 (2) 16-17 (1)	08-10 (1) 10-12 (2) 12-15 (1) 15-16 (2) 16-18 (4) 18-19 (2) 19-20 (1)	07-09 (1) 13-15 (1) 15-16 (2) 16-17 (3) 17-20 (4) 20-22 (3) 22-01 (2) 01-03 (1)	21-23 (1) 23-01 (2) 01-03 (1) 03-05 (2) 05-07 (1) 02-06 (1)*
McMurdo Sound, Antarctica	Nil	15-18 (1)	15-17 (1) 17-19 (2) 19-21 (3) 21-23 (2) 23-00 (1) 08-10 (1)	01-06 (1)

**Time Zone: PDT (24 Hour Time)
WESTERN USA TO:**

Reception Area	10 Meters	15 Meters	20 Meters	40/80 Meters
Western Europe & North Africa	Nil	11-13 (1)	06-07 (1) 07-09 (2) 09-12 (1) 12-15 (2) 15-17 (1) 22-00 (1)	20-21 (1) 21-23 (2) 23-00 (1) 22-23 (1)*
Central & Northern Europe & CIS	Nil	10-13 (1)	06-07 (1) 07-09 (2) 09-12 (1) 12-14 (2) 14-16 (1) 21-23 (1)	19-00 (1)
Eastern Mediterranean & Middle East	Nil	09-12 (1)	07-08 (1) 08-10 (2) 10-12 (1) 12-14 (2) 14-15 (1) 20-22 (1)	20-23 (1)

Western & Central Africa	Nil	12-15 (1)	06-07 (1) 07-09 (2) 09-14 (1) 14-16 (2) 16-18 (3) 18-19 (2) 19-20 (1)	21-01 (1)
East Africa	Nil	Nil	12-15 (1) 15-17 (2) 17-19 (1)	20-22 (1)
South Africa	Nil	10-12 (1)	07-09 (1) 12-14 (1) 14-16 (2) 16-18 (1) 22-00 (1)	20-21 (1) 21-22 (2) 22-23 (1) 20-22 (1)*
Central & South Asia	Nil	17-20 (1)	07-08 (1) 08-10 (2) 10-12 (1) 17-19 (1) 19-20 (2) 20-21 (1)	06-08 (1)
Southeast Asia	Nil	16-20 (1)	08-09 (1) 09-11 (2) 11-13 (1) 18-21 (1) 21-00 (2) 00-01 (1)	02-05 (1) 05-07 (2) 07-08 (1) 06-07 (1)*
Far East	Nil	15-17 (1) 17-19 (2) 19-20 (1)	07-08 (1) 08-10 (2) 10-12 (1) 12-14 (2) 14-18 (1) 18-20 (2) 20-22 (3) 22-23 (3) 23-01 (1)	01-02 (1) 02-06 (2) 06-07 (3) 07-08 (1) 03-07 (1)*
South Pacific & New Zealand	16-18 (1)	12-15 (1) 15-16 (2) 16-19 (3) 19-20 (2) 20-21 (1)	01-07 (1) 07-08 (2) 08-10 (3) 10-11 (2) 11-14 (1) 14-18 (2) 18-20 (3) 20-22 (4) 22-23 (3) 23-01 (2)	22-23 (1) 23-00 (2) 00-06 (3) 06-07 (2) 07-08 (1) 23-02 (1)* 02-05 (2)* 05-07 (1)*
Australasia	15-18 (1)	13-16 (1) 16-17 (2) 17-19 (3) 19-21 (2) 21-22 (1)	12-19 (1) 19-20 (2) 20-01 (3) 01-04 (2) 04-07 (1) 07-08 (2) 08-10 (3) 10-12 (2)	00-02 (1) 02-03 (2) 03-06 (3) 06-08 (2) 08-09 (1) 02-04 (1)* 04-06 (2)* 06-07 (1)*
Northern & Central South America	12-14 (1) 14-17 (2) 17-18 (1)	08-09 (1) 09-12 (2) 12-14 (3) 14-16 (4) 16-17 (3) 17-18 (2) 18-19 (1)	06-07 (1) 07-08 (2) 08-10 (3) 10-16 (2) 16-17 (3) 17-19 (4) 19-20 (3) 20-22 (2) 22-02 (1)	18-21 (1) 21-22 (2) 22-01 (3) 01-03 (2) 03-07 (1) 20-22 (1)* 22-02 (2)* 02-05 (1)
Peru, Bolivia, Paraguay, Brazil, Chile, Argentina & Uruguay	13-14 (1) 14-16 (2) 16-17 (1)	08-10 (1) 10-12 (2) 12-15 (1) 15-16 (2) 16-17 (4) 17-19 (2) 19-20 (1)	04-07 (1) 07-09 (2) 09-15 (1) 15-17 (2) 17-19 (3) 19-22 (2) 22-00 (1)	20-22 (1) 22-00 (2) 00-02 (1) 02-04 (2) 04-06 (1) 01-05 (1)*
McMurdo Sound, Antarctica	Nil	13-16 (1) 16-18 (2) 18-20 (1)	08-10 (1) 16-19 (1) 19-21 (2) 21-23 (3) 23-00 (2) 00-01 (1)	01-06 (1)

*Indicates best times to listen for 80 meter openings. Openings on 160 meters are also likely to occur during those times when 80 meter openings are shown with a propagation index of (2) or higher.
For 12 meter openings interpolate between 10 and 15 meter openings.
For 17 meter openings interpolate between 15 and 20 meter openings.
For 30 meter openings interpolate between 40 and 20 meter openings.
Propagation charts prepared by George Jacobs, W3ASK.

**Sales Order Line
1-800-927-4261**

Burghardt
INC.
AMATEUR CENTER



**Proud to be
"AMERICA'S MOST
RELIABLE AMATEUR
RADIO DEALER"**
Serving Amateur Radio
Operators Since 1937

**We Want To Be "YOUR" Radio Dealer.
Write for our updated Used Equipment Listing!**

**Technical & Info. (605) 886-7314
Fax (605) 886-3444
(Internet Connections)**

**E-Mail - sales@burghardt-amateur.com
See Our Catalog/Specials On Our Home Page
http://www.burghardt-amateur.com**

**710 10th Street SW
Watertown, SD 57201**

HRS: MON.-FRI. 8-5p.m.; SAT. 9-1 p.m. CLOSED SUNDAYS/HOLIDAYS

**K-Y Filter
Company**

**3010 Grinnel Place
Davis, CA 95616
Tel: (530) 757-6873**



**K-Y modem/telephone RFI filters are truly
superior!**

Please visit us at:

www.ky-filters.com/cq.htm

LOG WINDOW

from SCO Inc. formerly "Log Windows"

*The Ham's BEST QSO
logging software.*

www.logwindow.com

Since 1942

www.RFFun.com



Universal Radio
6830 Americana Pkwy.
Reynoldsburg, OH 43068
♦ Orders: 800 431-3939
♦ Info: 614 866-4267
♦ Fax: 614 866-2339

Licensed Before 1981?

QCWA invites you to join with those distinguished amateurs licensed 25 or more years ago. Request an application from:

QCWA, Inc., Dept. C
PO Box 3247
Framingham, MA 01705-3247
www.qcwa.org



PowerPort™

Sale 20% Off



**FT-817
Worldpouch**

800-206-0115
www.powerportstore.com

K2AW'S FAMOUS HI-VOLTAGE MODULES

20,000 IN USE IN OVER 50 COUNTRIES		SAME DAY SHIPPING MADE IN U.S.A.	
HV14-1	14KV-1A	250A.SURGE	\$15.00
HV10-1	10KV-1A	250A.SURGE	12.00
HV 8-1	8KV-1A	250A.SURGE	10.00
HV 6-1	6KV-1A	150A.SURGE	5.00

Plus \$5.00 SHIPPING-NY RESIDENTS ADD 8% SALES TAX

K2AW's "SILICON ALLEY"

175 FRIENDS LANE WESTBURY, NY 11590
516-334-7024

NEW

DX4WIN V6

**Now Supports Electronic
QSL Submission**

**Featuring Integrated PSK31,
and Dual Radio Support**

DX4WIN now combines the quality features, flexibility and customer support it's famous for, with a high quality INTEGRATED PSK31 interface. No longer do you have to work PSK and then log in separate applications. It can ALL be done within DX4WIN, using all standard DX4WIN features.

DX4WIN version 6.0 only \$89.95

Shipping \$6.95 US/\$11 DX.

Upgrades available for previous versions

To order, or for more information, contact:

Rapidan Data Systems

PO Box 418, Locust Grove, VA 22508

(540) 785-2669; Fax: (540) 786-0658

Email: support@dx4win.com

Free version 6.0 demo and secure online ordering at

www.dx4win.com

Between midnight and sunrise the best band should be 40 meters, but check 60 meters, too. For openings between 1300 miles and the one-hop short-skip limit of approximately 2300 miles, try 20 and 17 meters during the day, with 15 meters also usable. After sundown try 30, 40, and 60 meters, with 80 meters also providing good propagation conditions for this distance range.

VHF Conditions

Sporadic-E propagation usually begins to taper off during August, but it should continue to occur fairly frequently. Some 6-meter sporadic-E openings are expected during the month over distances of approximately 750 to 1300 miles. During periods of intense and widespread sporadic-E ionization, two-hop openings may be possible considerably beyond this range. Also check the 2-meter band for an occasional sporadic-E short-skip opening between approximately 1200 to 1400 miles. While sporadic-E short-skip openings may occur at any time, there is a tendency for them to peak between 8 AM and noon, and again between 6 PM and 9 PM local daylight time.

The *Perseids* meteor shower covers the period of July 23 to August 22. The peak is expected to occur between August 12 and 13 and will be most observable in the Northern Hemisphere. The maximum hourly visual rate typically reaches 80. It is not expected to be a major shower, however.

Aurora? One would think that aurora would not be a frequent player at this point in the decline of Cycle 23, but with the continued expulsion by the sun of coronal mass into the solar wind, we have been observing occasional moderate auroral activity in the highest latitudes. Some of this occurred even during the late spring and early summer this year. Auroral-scatter-type openings on both 6 and 2 meters can range from a few hundred up to about a thousand miles, and they are usually characterized by very rapid flutter and Doppler shift on SSB signals.

For the very patient, check the 6-meter band for possible trans-equatorial (TE) openings between 8 and 11 PM local daylight time. This type of propagation favors openings from the southern tier states into deep South America, with the signal path crossing the magnetic equator at a right angle. TE openings during August are rare, but they can occur. Very weak signals and severe flutter fading usually characterize them.

Current Solor Cycle Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for May 2005 is 42.6, a large increase over April's 24.4. The lowest daily sunspot value recorded on May 21 was 13. The highest daily sunspot count was 82 on May 11. The 12-month running smoothed sunspot number centered on November 2004 is 35.4, not even a full point below October's 35.9. A smoothed sunspot count of 17, give or take about 12 points, is expected for August 2005 (one can see that the worst case translates to about five, again, as a possible monthly sunspot count for August; this is possible, although unlikely).

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 99.5 for May 2005, just shy of January's 102.4, and the highest since then. The 12-month smoothed 10.7-cm flux centered on November 2004 is 101.5, barely down from October's 102.1. The predicted smoothed 10.7-cm solar flux for August 2005 is 79, give or take about 16 points.

The observed monthly mean planetary A-Index (*Ap*) for May 2005 is 20, jumping up from March and April's 12. The 12-month smoothed *Ap*-index centered on November 2004 is 14.1, just a little over a point higher than in October. Expect the overall geomagnetic activity to vary greatly between quiet to active during most days in August, with some isolated periods of stormy activity. Refer to the Last-Minute Forecast for the outlook on what days this might occur.

Until Next Month . . .

Have you seen the Space Weather Canada website? It is located at <http://www.spaceweather.gc.ca/forecasting_e.shtml> and provides some useful information on propagation in the northern latitudes. As we move closer to the autumnal equinox, this could help you predict possible Au and sporadic-E opportunities.

As always, I invite you to visit my on-line propagation resource at <<http://propagation.hfradio.org/>>, where you can get the latest space data, forecasts, and more, all in an organized manner. If you have a cell phone with internet capability, try <<http://wap.hfradio.org/>>.

Drop me an e-mail or send me a letter if you have questions or topics you would like to see me explore in this column. I'd also love to hear any feedback you might have on what I have written.

73, Tomas, NW7US/AAA0WA

TROPHY WINNERS AND DONORS

SINGLE OPERATOR
World All Band
 CN2R (Opr. James Sullivan, W7EJ)
 Donor: Dave Rosen, K2GM
 WA2RAU and W2SKE Memorial

World Low Power
 Thomas Poland, SU9NC
 Donor: Slovenian Contest Club

World QRP
 P40A (Opr. John Bayne, KK9A)
 Donor: Jeff Steinman, N5TJ

World Assisted
 P40W (Opr. John Crovelli, W2GD)
 Donor: CQ magazine

U.S.A.
 Ken Claerbout, K4ZW
 Donor: Potomac Valley R.C. - KC8C Memorial

U.S.A. Low Power
 Edward Sawyer, N1UR
 Donor: North Coast Contesters

U.S.A. Zone 3
 Mitch Mason, K7RL
 Donor: Dave Pruett, K8CC & Greg Surma, K8GL

U.S.A. Zone 4
 Mike Wetzel, W9RE
 Donor: Dave Pruett, K8CC & Greg Surma, K8GL

Canada
 VC3L (Opr. Ron Kraats, VE3AT)
 Donor: Niagara Frontier Int'l DX Assn.
 VE3WT Memorial

Caribbean/C.A.
 8P1A (Opr. Thomas Georgens, W2SC)
 Donor: Alex M. Kasevich, VP2MM

Europe
 GI1W (Opr. Robert Cummings, GI0KOW)
 Donor: Potomac Valley R.C. - W4BVV Memorial

Europe Low Power
 CT7B (Opr. Jose Manuel Farto Lopes, CT1CJJ)
 Donor: Scott Jones, N3RA & Tim Duffy, K3LR

Russia
 RK4FF
 Donor: Roman Thomas, RZ3AA

Africa
 D4B (Opr. Alexander Teimurazov, 4L6A)*
 Donor: Gordon Marshall, W6RR

Asia
 A61AJ (Opr. Robert Kasca, S53R)
 Donor: 2 AM Dayton Pizza Gang

Japan
 Hiroyuki Inaba, JS3CTQ
 Donor: Tack Kumagai, JE1CKA

Japan Low Power
 Masaru Takahashi, JS1OYN
 Donor: Western Washington DX Club

Oceania
 VK9XD (Opr. David Burger, VK2CZ)
 Donor: Northern California DX Club

South America
 P40Y (Opr. Andrew Faber, AE6Y)
 Donor: Yankee Clipper Contest Club

SINGLE OPERATOR, SINGLE BAND
World - 28 MHz
 Juan Manuel Morandi, LU1HF
 Donor: Joel Chalmers, KG6DX

World - 21 MHz
 PX5E (Opr. Sergio Almeida, PP5JR)
 Donor: Robert Naumann, N5NJ

World - 14 MHz
 D44TD (Opr. Alberto Annesi, IV3TAN)
 Donor: North Jersey DX Assn. - K2HLB Memorial

World - 7 MHz
 Joseph Cornee, F6CTT
 Donor: Fred Laun, K3ZO - K7ZZ Memorial

World - 3.7 MHz
 Jurek Smoczyk, SP3GEM
 Donor: Fred Capossela, K6SSS

World - 1.8 MHz
 Jens Rohme, OZ1DD
 Donor: Robert Wruble, W7GG

USA - 28 MHz
 Bill Tippet, W4ZV
 Donor: Donald Thomas, N6DT

USA - 21 MHz
 Bradley Petersen, NG2X
 Donor: Worldradio

USA - 14 MHz
 Daniel Handa, W7WA
 Donor: Southern California DX Club

USA - 7 MHz
 Bill Kollenbaum, K4XS
 Donor: Stanley Cohen, W8QDQ

USA - 3.7 MHz
 Joseph Gagliardi, AA1BU
 Donor: Alex Jozsa, KG1E

USA - 1.8 MHz
 Manuel Fonseca, W2MF
 Donor: CQ magazine

Carib./C.A. (21 MHz)
 VP5DX (James Iori, NU4Y)
 Donor: Nate Moreschi, N4YDU

Europe - 28 MHz
 ZA/OH2BH (Opr. Martti Laine, OH2BH)
 Donor: Worldradio

Europe - 21 MHz
 Jiri Sanda, OK1RI
 Donor: Tine Brajnik, S50A

Europe - 14 MHz
 SO2R (Opr. Kaz Drezwiecki, SP2FAX)
 Donor: CQ magazine

Europe - 7 MHz
 YT7A*
 Donor: CQ magazine

Europe - 3.7 MHz
 LX7I (Opr. Philippe Luty, LX2AJ)
 Donor: Ted Demopoulos, KT1V

Europe - 1.8 MHz
 Bojan Sever, S57M*
 Donor: Robert Kasca, S53R

Oceania (14 MHz)
 K. S. Smith, VK6LW
 Donor: Bruce D. Lee, KD6WW

Asia - 14 MHz
 Nodir Tursoon-Zadeh, EY8MM
 Donor: Al Teimurazov, 4L5A - JA4FWM Memorial

Japan - 21 MHz
 Ooshika Tarou, JI2UNR
 Donor: DX Family Foundation

Japan - 14 MHz
 Akira Asai, JA8RWU
 Donor: Take Yokoyama, JL1BLW

MULTI-OPERATOR, SINGLE TRANSMITTER
World
 IH9P (Oprs: I2IFT, I2PJA, I8QLS, IK2ANI, IK2CIO, IK2HKT, IK2RZP, IK7JWY, IK8ETA, IN3QGY, IN3ZNR, IT9BLB, IT9WPO, IT9ZMX, OK1FUA, W1NA)
 Donor: So. Calif. DX Club - W6AM Memorial

U.S.A.
 KT1V (Oprs: KT1V, KC1F, WC1M, K1RX)
 Donor: Carolina DX Assn.

Carib./C.A.
 VP5X (Oprs: KY1V, WA4PGM, N0VD, K0RAY, CT1ILT)
 Donor: Eric Scace, K3NA

Africa
 CQ9K (Oprs: CT1BOH, CT3BD, CT3DL, CT3DZ, CT3EE, CT3EN, CT3HK, CT3IA, CT3HK, CT3KU, CT3KY, CT3LG, CT3MD)*
 Donor: Tikiriki Contest Club - IH9P

Asia
 5B/AJ2O (Oprs: RW3QC, RW4WR, RN3AZ, UA9CDV, RA3AUU)
 Donor: Edward L. Campbell, NT4TT
 AA6BB and KA6V Memorial

Japan
 JA7YAA (Oprs: JE7HLZ, JH0NZN, JG7PSJ, JO7FTJ, JI5RPT, JA6SCY, JJ0CBB, JO7JID, JO7DJT)
 Donor: Vienna Int'l ARC - 4U1VIC

Europe
 OM8A (Oprs: OM2KW, OM2VL, OM3BH, OM3GI, OM3LA, OM3NA, OM3RM, OM7JG)
 Donor: Bob Cox, K3EST

Oceania
 AH2R (Oprs: JI3ERV/NH2C, JR7OMD/WI3O, JE8KKX/AH2K, JG3RPL/N1BJ)
 Donor: Junichi Tanaka, JH4RHF

South America
 FY5KE (Oprs: F1HAR, F5HRY, F5MZN, F6EPY, F6FVY, F6FGZ, FY1FL)*
 Donor: The Cuba Libre Contest Club

MULTI-OPERATOR, TWO TRANSMITTERS
World
 VP2E (Oprs: KC5EA, N5AU, N5TJ, K5MR, K1DG, N2NT, VE3EJ)
 Donor: Ranko Boca, YT6A

U.S.A.
 K3LR (Oprs: K3LR, N2NC, N5NJ, N4HY, K1AR, W5MR, K3UA, K17WX, N3GJ, N3SD, W9ZRX, K4SQR)
 Donor: Kimmo Chun, KH7U
 Dan Robbins, KL7Y Memorial

Europe
 IR4X (Oprs: I4TJE, I4IND, I4EAT, I4IKW, I4AVG, I4VEQ, IK4DCT, IK4EWK, IK4CZF, IZ4BOY, IK2NCJ, IK2QPR, IZ3EYZ)
 Donor: Aki Nagi, JA5DQH)

Oceania
 VK4CZ (Oprs: VK4JSR, VK4CZ, VK4WR, VK4FI, VK4APG, VK4TU)
 Donor: Japan CQ Ham Radio

MULTI-OPERATOR, MULTI-TRANSMITTER
World
 EA8ZS (Oprs: EA8ZS, OH1JT, OH1MA, OH1RY, OH2IW, OH2HE, OH2JA, OH2MM, OH2UA, OH4JFN, OH5BM, OH6EI, OH7JR, OH7RR, OH0XX)
 Donor: Dave, W6NL and Barb, K6BL Leeson

U.S.A.
 W3LPL (Oprs: W3LPL, K1RZ, ND3A, ND3F, AI3M, NK3R, K3RA, W3UR, NN3W, WR3Z, W3ZZ, KD4D, K4ZA, AC5RR, W6AAN, K9QQ)
 Donor: CQ magazine

Europe
 9A1A (Oprs: N4PN, NF4A, S52OP, 9A5W, 9A5E, 9A2DQ, 9A2EU, 9A4WW, 9A6A, 9A5K, 9A8W, 9A4CD, 9A9A)
 Donor: Finnish Amateur Radio League

Japan
 JA3YBK (Oprs: JH3PRR, JG3KIV, JI3OPA, JP3PZD, JH4NMT, JR4ISF, JF4FUF)
 Donor: Ryoza Goto, JH3JYS

CONTEST EXPEDITIONS
World Single Operator
 VK9XD (Op: VK2CZ)
 Donor: National Capitol DX Assn.
 Stuart Meyer, W2GHK Memorial

World Multi-Single
 C91Z (Oprs: ZS6WPX, ZS6JR)
 Donor: Gail Schieber, K2RED

World Multi-Multi
 FP/VE7SV (Oprs: VE7SV, VE7AHA, VE7CC, VA7NT, VE7SZ, VE7VR, XE1KK, N7RO)
 Donor: Tachio Yuasa, JA9VDA

SPECIAL SINGLE OPERATOR AWARD
World-All Band Under 21 years old
 Vakhtang Mumladze, 4L6AM
 Donor: Gene Zimmerman, W3ZZ

*Second place

BAND-BY-BAND BREAKDOWN—TOP ALL BAND SCORES

Number groups indicate: QSOs/Zones/Countries on each band

WORLD TOP SINGLE OPERATOR ALL BAND

Station	160	80	40	20	15	10
CN2R	293/14/73	730/19/84	818/28/103	1838/38/144	1782/37/138	3194/36/126
D4B	250/15/71	267/20/78	479/26/88	2635/40/150	1926/36/144	3242/35/143
8P1A	244/10/25	366/20/71	1087/26/101	2199/36/127	2564/34/127	2922/32/117
A61AJ	110/9/48	504/26/88	651/29/101	1444/37/129	1434/36/131	3061/36/125
P49Y	72/7/17	250/15/43	397/18/68	1618/30/96	2022/28/103	2324/29/88
GI1W	397/10/54	829/22/82	881/26/108	993/34/108	1756/28/108	1511/32/114
EA9LZ	36/6/26	268/12/56	881/20/73	1258/26/82	1388/31/93	1823/28/83
FS/AH8DX	49/8/26	212/15/42	489/24/89	1171/31/111	1571/31/113	2004/26/105
K4ZW	34/9/25	239/20/72	303/22/79	1011/36/130	1154/36/119	1126/31/112
KQ2M/1	49/12/30	263/17/72	246/22/91	763/39/136	1429/35/130	1114/32/120

USA TOP SINGLE OPERATOR ALL BAND

Station	160	80	40	20	15	10
K4ZW	34/9/25	239/20/72	303/22/79	1011/36/130	1154/36/119	1126/31/112
KQ2M/1	49/12/30	263/17/72	246/22/91	763/39/136	1429/35/130	1114/32/120
K5ZD/1	46/12/29	355/16/70	275/24/82	1107/34/125	1304/31/114	801/25/100
W9RE	28/9/16	123/19/61	319/25/88	872/37/121	1248/39/128	806/28/100
K3CR	44/13/25	292/19/77	311/20/79	623/35/114	793/35/108	799/28/101
K3ZO	34/9/21	49/11/27	388/19/81	632/28/102	1087/31/105	751/27/98
AA1K/3	35/10/22	133/14/49	228/18/71	797/35/124	705/34/119	843/26/100
W3BGN	42/11/25	199/17/68	238/23/71	612/35/106	631/33/98	936/26/109
N2IC/5	15/8/13	81/19/37	336/27/70	401/33/101	805/36/117	724/32/102
K7RL	16/6/6	104/20/37	392/26/70	865/34/107	850/35/99	479/26/68

WORLD MULTI-OPERATOR SINGLE TRANSMITTER

IH9P	435/13/77	528/17/79	1363/29/117	1723/40/150	1865/39/149	2100/37/150
CQ9K	80/11/51	349/18/73	495/28/113	1685/40/150	2236/36/148	2995/38/153
FY5KE	114/14/52	386/18/68	579/23/90	1767/36/139	1860/38/147	3531/34/146
5B/AJ20	251/10/64	497/21/81	1141/25/105	1708/37/145	1680/37/134	2432/36/135
9Y4ZC	44/7/19	297/18/69	686/22/93	1648/39/149	2116/34/128	2577/31/133
VY2ZM	311/18/73	1007/23/95	449/27/105	1937/40/157	1828/34/138	554/29/127

USA MULTI-OPERATOR SINGLE TRANSMITTER

KT1V	41/12/34	499/21/87	501/24/101	1281/38/150	1055/34/133	1039/30/130
K1KI	35/11/32	225/21/79	566/27/101	933/40/163	1405/34/145	1030/33/144
K1IR	37/11/32	461/19/87	502/27/109	730/40/142	916/36/134	782/28/127
K8AZ	32/14/30	151/21/73	452/31/110	984/39/151	906/36/138	752/31/132
N0NI	28/13/20	90/17/55	233/29/102	569/40/140	1003/39/144	609/31/129
K5NA	25/10/24	81/19/48	229/29/104	461/40/146	1118/38/143	754/34/133

WORLD MULTI-OPERATOR TWO TRANSMITTER

VP2E	216/17/62	945/23/102	2346/34/145	3794/40/172	4771/39/163	4796/35/160
PJ2T	159/10/30	403/21/74	1209/29/104	2763/40/142	3196/34/125	3541/32/127
CT9L	67/7/35	348/14/70	993/26/94	1820/34/136	2785/36/142	3583/36/143
IR4X	91/9/61	1038/26/93	1326/33/127	1854/40/155	2289/40/158	2028/37/160
K3LR	56/14/40	439/27/89	830/33/122	2024/40/169	2899/40/166	1390/33/145
PS2T	2/2/2	51/14/25	406/30/104	2321/40/153	2650/40/160	3311/34/147

USA MULTI-OPERATOR TWO TRANSMITTER

K3LR	56/14/40	439/27/89	830/33/122	2024/40/169	2899/40/166	1390/33/145
N3RS	53/12/34	527/24/90	603/29/110	1343/40/161	2029/39/155	1250/30/142
K4JA	59/15/43	490/23/92	730/33/118	828/40/153	1587/38/154	1520/32/139
WE3C	60/13/39	360/21/89	300/27/99	1061/39/148	1125/36/133	832/31/130
W4RM	35/8/14	440/14/66	447/19/76	1072/33/122	1096/33/123	906/23/100
NK7U	24/9/11	200/23/46	420/30/100	1135/40/145	1280/37/129	387/27/86

WORLD MULTI-OPERATOR MULTI-TRANSMITTER

EA8ZS	334/16/72	768/23/94	2040/33/122	4012/40/176	4178/39/174	4354/37/164
HC8L	295/13/42	891/26/88	1870/34/124	3435/37/151	4699/40/155	4489/31/134
FP/VE7SV	827/15/70	1869/20/93	2200/28/107	2813/35/125	3361/30/127	3142/27/108
KH7X	192/12/14	996/30/60	1909/37/92	2885/39/161	3317/38/126	3331/38/106
9A1A	923/11/68	1744/29/107	2235/35/129	3245/40/159	2569/39/150	2113/39/154
V26B	101/7/20	499/18/73	1496/29/111	3256/37/128	3092/35/114	4019/35/131

USA MULTI-OPERATOR MULTI-TRANSMITTER

W3LPL	237/16/54	819/26/98	984/30/121	2400/40/177	2213/40/167	1603/34/153
KC1XX	250/15/47	986/28/104	1001/34/127	1895/40/169	2308/40/165	1711/35/149
K9NS	133/14/39	289/26/84	541/32/120	1837/40/170	2197/40/166	1499/34/146
K1TTT	116/14/40	617/21/90	382/26/104	1775/40/157	1760/38/144	1061/31/138
N04I	175/12/25	329/22/84	908/31/121	1641/40/157	1717/38/156	1408/33/142
K1RX	177/11/39	665/21/85	686/27/111	1508/38/154	1324/34/135	968/31/130

cation process. Submitting an electronic log is easy, and please send in your log no matter how small. Send your SSB log and summary forms to <ssb@cqww.com> (CW to <cw@cqww.com>). Please send your log in Cabrillo format. If you did everything okay, you will get back an acknowledgement and a tracking number. If there was something wrong, you will get a message telling you what to do to correct the error. You can then resubmit your log to the same e-mail addresses given above.

Anyone who submits an electronic log receives a UBN report of how their log was judged. You can learn more about the UBN report by going to the CQWW.com website; scroll down to the end where it is explained. The CQWW Contest Committee provides many ways for an entrant to check his/her log for category, club, operator, and score accuracy. Long before the final results are published a listing of log received, your category, and UBN list is published on the CQWW site. Thanks to the input from numerous entrants, some systemic errors were found and corrected. All these efforts help to make the results as accurate as possible.

Several problems have arisen because of the use of help in the contest. If you are single operator in any category, you cannot receive help in any way from another person. Each year we receive reports of someone allegedly having another operator spot or work QSOs for him. This is cheating and will not be tolerated. The use of packet to self-spot is against the rules. Self-spotting can be broken down into doing it yourself, and trying to hide the fact that you are doing it by using other callsigns. There is nothing wrong with coming across a station and spotting it, but self-spotting is against the rules. Participants enter the contest to have fun, meet friends, perhaps work some new ones, and compete fairly.

Thanks

Thanks to the CQWW log checkers who validated the winners and

provided insight into many contesting topics. They are K1DG, K3WW, K3ZO, KR2Q, N2AA, N2NC, N3ED, N6ZZ, N9RV, W3ZZ, K1AR, KM3T, KT3Y, N5TJ, N5NJ, K6AW, and N8BJQ. The DX advisors offered advice and sorted out potential problems: CT1BOH, DL6RAI, EA3DU, F6BEE, G3SXW, I2UIY, JE1CKA, OH2KI, OH2MM, PY5EG, S50A, UA9BA, VA7RR, VE3EJ, RA3AUU, and E21EIC. A special thanks to Dick, N6AA, and Larry, N6TW, who once again spent countless hours to make the CQWW database the best in contesting. The CQWW uses the software developed by Tree, N6TR. Additional software provided by WT4I was used. The CQWW records are maintained by John, N2NC, and K3EST. Phil, N6ZZ, put in lots of hours making sure the database was as clean as possible. Thanks to John, K1AR, for his advice.

Congratulations to all the winners and entrants! CU in the 2005 contests!
73, Bob, K3EST

USA QRM

Chose 40m so I could spend days with the family. Need to send family away next time! . . . **AA8MQ**. Great conditions on all bands made this one lots of fun. Thanks to the contest sponsor, volunteers, and DXpeditioners who devote their time and energy to make the contest such an exciting event and thanks to the loyal members of team K1IR. . . . **K1IR**. Conditions were super; just like old times again! . . . **K4WI**. Nice to see so many signals from around the world. Certainly this is the cornerstone of the DX contest year. Thanks! . . . **K5PAX**. Dug mic out of trash box to work first SSB contest in years. Good practice at digging out muls. . . . **K6KYJ**. Had fun and got a few new ones. . . . **K8OT**. Most fun I ever had with ham radio! . . . **KB6JMF**. Long live the CQWW! . . . **KC1XX**. Great conditions! Great pile-ups! Great radio! . . . **KC2HZW**. Outstanding conditions! More BY's on the bands than ever. . . . **KC7V**. Who said you can't have fun with just a few watts and some wire in your backyard trees? Special thanks to all the folks who activated rare and interesting countries. You guys really add the spice to this fun contest. . . . **KR1ST/4**. What a great weekend of contesting! 10 meters was smoking! . . . **N3MX**. Wow! Where

EUROPE TOP SINGLE OPERATOR ALL BAND

Station	160	80	40	20	15	10
GI1W	397/10/54	829/22/82	881/26/108	993/34/108	1756/28/108	1511/32/114
GW4BLE	118/7/45	629/14/68	645/23/86	809/30/96	1343/27/86	1095/32/87
S50A	88/9/44	257/13/62	806/30/96	801/30/97	1419/32/103	863/33/114
ES5TV	305/10/56	476/22/76	637/35/111	962/39/125	1030/37/129	769/32/124
M6T	81/5/38	591/12/60	550/26/83	822/35/99	1323/35/111	1014/34/102
GM7V	241/8/47	722/16/72	380/23/87	793/32/113	1193/36/117	959/31/114
DJ5MW	228/7/51	540/12/66	438/23/96	814/30/106	932/36/118	927/36/123
DJ4PT	171/11/48	379/18/72	420/28/88	1131/29/91	1152/33/92	573/32/80
RK4FF	98/8/43	582/17/71	710/23/87	837/39/114	944/36/135	1470/35/126
S57DX	171/8/45	621/16/69	540/26/95	1320/31/109	569/28/90	636/35/111

EUROPE MULTI-OPERATOR SINGLE TRANSMITTER

OM8A	257/12/69	681/27/93	780/30/121	1547/40/154	1396/40/146	817/38/153
OE2S	321/12/62	746/16/73	706/28/107	1193/40/141	1467/39/151	1208/38/153
OM7M	166/13/67	473/23/85	941/34/123	1509/39/141	1898/40/158	227/38/151
OK5W	59/11/58	474/25/84	1198/33/125	789/40/145	1492/38/150	976/37/150
RW2F	420/14/69	701/21/85	647/32/116	1489/40/150	1363/40/145	562/37/153
S50C	129/9/60	572/20/74	985/33/119	1156/37/139	1254/39/142	715/37/148

EUROPE MULTI-OPERATOR TWO TRANSMITTER

IR4X	91/9/61	1038/26/93	1326/33/127	1854/40/155	2289/40/158	2028/37/160
9A7A	326/9/62	1050/19/82	1414/31/124	1823/40/147	2282/37/149	1758/38/156
UU7J	313/12/63	940/26/94	823/33/118	2740/40/161	2372/40/148	1655/37/151
CT8T	240/11/57	549/18/79	1324/28/105	1852/37/147	2220/37/135	2212/39/142
HG6N	523/11/62	921/17/80	970/32/120	1382/39/140	2274/37/145	1338/38/151
RU1A	354/11/60	810/27/99	1442/36/133	2091/40/155	1912/40/146	535/33/142

EUROPE MULTI-OPERATOR MULTI-TRANSMITTER

9A1A	923/11/68	1744/29/107	2235/35/129	3245/40/159	2569/39/150	2113/39/154
DF0HQ	1037/12/68	1713/26/102	2500/35/138	2140/40/161	2209/40/164	1465/39/162
DF0CG	952/14/70	1259/21/85	1856/33/126	2867/40/155	2231/38/148	1046/37/141
OT4A	81/12/64	1711/20/83	2065/33/121	2374/38/152	2103/39/137	1658/37/151
MD4K	1114/13/67	1531/17/83	2710/26/109	2465/39/151	2453/38/158	1810/33/143
LZ9W	486/9/66	665/18/83	1882/32/124	2429/40/161	2513/39/153	1445/37/142

did that come from? I was expecting a bottom-of-the-cycle contest, not this. . . **W1JQ**. This contest was far better than expected for my meager station. The high band openings really made the contest fun. Thanks to all the "good ears" at the DX stations. . . **W4KAZ**. Best effort to date! Very proud of our "cheap spumante station on a light beer budget." . . **W4WS**. Cannot believe I worked 39 zones at this point in the sunspot cycle! And, I heard zone 26 on two bands but couldn't work it! . . **W8TN**.

Surprisingly, 10m was good enough to produce DXCC on that band alone, along with 15 and 20 meters DXCC, in spite of the solar flare. Two new operators at the station were impressed and contributed significantly to the overall score. . . **W8ZA**. Thanks to the solar gods for the propagation. . . **WA3G**. Planned on high power but the amp blew during warmup, then got laryngitis and couldn't talk, not good for a phone contest! At least my wife promised a voice keyer for Christmas! . . **WB2KLD**. Band conditions were great for entire contest. All the bands were crowded. Worked many new countries on all four bands. . . **WB2QLP/4**. This has got to be the best CQWW of all we have participated in. . . **WB3CJU**. Rig would not transmit on 15m! 82 countries on 10m with a sloper! . . **WR3Y**. Great contest. Multi/Multi on Friday night until about 2:00 AM, then Single-Op Saturday plus a couple hours Sunday. Unusually great conditions on 10 meters! WX3B will be off the air for several months while I move and install some more, bigger, better antennas! . . **WX3B**.

DX QRM

Newly licensed, first contest. Had a ball on 10m. Gonna be back next year, better prepared better location. . . **2E0VPE**. First CQWW from the new zone 1 QTH. Propagation to Europe stunk most of the weekend, but the JA's were steady and profuse. Picked up several all time new countries in Asia, Pacific, and eastern Europe. All in all my best contest effort ever. Hope to set the bar higher next year and do even better despite the solar cycle. . . **AL9A**. It's difficult to operate contest when you have problem with voice, hi. . . **D4B**. Our first try from the refurbished school club station DL0RSG. We had a lot of fun and quite a bit of practice for future contests! Conditions were surprisingly good, and 10 meters was just packed with stations! . . **DL0RSG**. Operated with two fishing rods stuck out of the hotel balcony. Recommended! . . **EA6/LY1DF**. We enjoy this contest every year! First M/S from this QTH. 10m was a big surprise. . . **EI7M**. A fantastic adventure!

TOP SCORES IN VERY ACTIVE ZONES

Zone 3	VO1AU.....7,143,551	SN7L.....1,864,708
K7RL.....3,524,400	VO1MP.....6,087,368	OK1AVY.....1,644,019
W6PH.....1,858,584	K3CR.....5,184,258	*9A7P.....1,631,019
AA7A.....1,145,928	K3ZO.....4,564,235	
K6XX.....1,121,526	AA1K.....4,546,820	Zone 16
KG7H.....1,115,316	W3BGN.....4,462,850	RK4FF.....5,301,682
WK6I.....1,054,788	N2RM.....3,417,276	RK4FD.....2,515,315
*NT6AA.....1,041,750		*UA4FER.....2,045,730
W6TK.....956,956	Zone 14	*RV3FF.....1,576,328
*VE7XF.....903,222	GI1W.....9,836,574	*RW3GU.....1,369,500
N5LZ/7.....596,148	GW4BLE.....6,535,274	*RU3QW.....1,325,808
	M6T.....6,038,400	RX3DCN.....1,157,226
	GM7V.....5,948,712	*UV1G.....1,011,560
Zone 4	DJ5MW.....5,536,256	*RZ4FA.....962,136
VC3L.....7,256,081	DJ4PT.....5,491,016	RA6AFB.....886,830
W9RE.....6,216,815	*CT7B.....3,511,185	
VE3EJ.....6,031,256	F5RZJ.....3,052,504	Zone 25
N2IC/5.....3,802,050	*EA7RM.....2,961,569	JS3CTQ.....3,618,983
N8VW.....2,714,432	DK5QN.....2,749,827	JA7NVF.....2,794,697
VE3XN.....2,666,520		JR1AIB.....2,604,640
VE3KZ.....2,211,075	Zone 15	JA3USA.....2,504,802
N8BJQ.....2,075,332	S50A.....6,413,199	JA2BNN.....1,277,560
KU1CW/0.....2,024,502	ES5TV.....6,065,520	JL2KXK.....1,168,398
NR0X.....1,996,852	S57DX.....4,919,460	JR3NZC.....904,430
	YL6W.....2,530,412	*JS1OYN.....625,500
Zone 5	*LY9A.....2,135,931	*7K3OWM.....434,280
K4ZW.....7,583,034	OH2RA.....2,102,867	*J17VNJ.....359,784
KQ2M/1.....7,506,464	IK3UNA.....1,937,562	
K5ZD/1.....7,146,952		<i>*Low Power</i>

Thanks to all who made it possible. . . **FP/VE7SV**. First time entry from UK young contesters (helped by some older ones!). We all had great fun. . . **G1A**. Fantastic conditions to North America on 10 meters for this position in the sunspot cycle. . . **G4NXG**. Another great contest. Gave some of the MM3 callsigns a go. Youngest was 10 years old; she did enjoy it. . . **GM2T**. Wow! Totally unexpected 10/15 metre condx; should have believed prediction in CQ magazine! Never seen rate of 276/hour on CT before, even if it was for only 10 QSOs! . . **GW3JXN**. Many prefixes not given clearly. . . **GW3YVC**. Weather very bad, station performed well, eating time was always very important, so that the transmission stopped! A very pleasant weekend of radio activity. . . **HB9AUS**. Wow, what a funny contest! Great conditions on 10m, way beyond expectations, led us to our best ever score since J49Z started in 2001. . . **J49Z**. The Cambridge University Wireless Society (G6UW/ M4A) joined forces with the Granta Contest Group (M0CAM/ M4R) for this multi-single operation. Thanks to everyone who worked us. . . **M4A**. My first contest. I only received my licence in the spring. Age 15 years only. . . **MM3PAE**.

First time contesting as QRP. QRP was fun, and many ops had great ears, so it was a pleasure to work. . . **OH6GDX**. The first attempt from our new contest location. . . **OM8A**. Great propagation on both days. Propagation is like a beautiful woman; we will never figure it out, but we keep on trying! . . **ON4APU**. Fantastic contest! Real dream conditions with great DXCC activation also on the low bands. Very promising for the coming years. . . **OT4L**. Nice contests. . . **OT4W**. Condx good. Contest nice. Till next test. 81 years young. . . **PA0KDM**. Wow! Ten meters was hot during the contest! Just great to hear so many contest friends on the band. . . **PG2AA**. Great pleasure in having the young generation operating the station in Araraquara. . . **PS2T**. Just for fun! Neither of us have been amateurs for more than a year! C ya next year. . . **SM6U (SM5YB & SM6YOU)**. Very fun, much better condx then expected. . . **SM7E**. Nice to be present again with 100W and vertical entry. Only 10m SO Assisted, QSO on other bands. . . **SP5ES**. Worked with only 30W. . . **T92M**. It was for most of the team members the first time. Perhaps too many parameters to manage, but sure, our rookies really enjoyed it. Not a big score, but is that the most important for us? No, or not yet! . . **TM7Z**. Wow! A great contest and terrific condx! I'll look for a better low-band antenna for 2005. . . **VC3W**. Operated from Zone 2 in Sept Isles, Canada with a complete field-day type setup on the St. Lawrence seaway. Vertical antennas responded excellently. Great fun and excellent band conditions. . . **VE2/K3FMQ**. We took the Multi-2 category literally and had only two operators the whole weekend. Conditions were much better than expected and even lacking a 160m antenna we had the best score ever for the VE3SY station in a CQWW SSB contest. . . **VE3XD**. This contest was my personal best, despite R2 blackouts, CMEs, and dead bands on 80 and 160. Next year I will be ready with decent antennas for 40, 80, and 160! I am still amazed at the instant silence at 2400Z Sunday! . . **VE6ZC**. Wow!! 255 Qs with only 13 operators. I bet this is a new record that will stand for a very long time! This was a contest training session. Ten ops with no ticket and no ham experience. I think I turned four of them on. . . **VE7FO**. Who ever expected 10m to be as hot as it was? 10m proved to be the ultimate money band, with LP openings into the Caribbean until well after midnight AEST. Great contest, and no severe storms like last year, plus a new high score.

What more could we ask for? . . . **VK4CZ**. Great contest. We turn ourselves into zombies. We end up with a hoarse voice. We deny ourselves sleep. We are hungry. We are thirsty. It still remains a great contest. . . . **VK7VH**. A great contest and a very talented crew. We were really glad to get in one more good contest season before this solar cycle bottoms. We will be back next year regardless of what the solar cycle does! . . . **VP2E**. Unbelievable propagation plus great people makes great fun. . . . **VY1JA**. This was my first contest to enter! Lots of fun. Nice to be able to provide zone 01 and received thanks. . . . **WL7BDO**. This was a memorable propagation weekend during this stage of the solar cycle. Go CQWW! . . . **XE2AC**. Using new

antenna. My best result on 21 MHz in Latvia now refreshed. . . . **YL2BJ**. Tks contest! . . . **YL2IP**. Tnx for nice contest! . . . **YL2PQ**. Age 21. My first contest ever with more than 1 mil. points and also first contest ever with all the 40 zones. Just beautiful! . . . **YP3A**. The 10 meter god smiled upon us, but the equipment god was out to lunch. . . . **ZK1AQT**. Thanks for the behind the scenes work! . . . **ZL4PW**. Ten metres was fantastic! Worked 9 new countries and 1 zone. Once again another great contest! Hope to work you all and more in CQWW 2005. Until then good DX. Thanks to CQ magazine for sponsoring this contest! . . . **ZS5T**. Thanks to PY5E4G, Oms, for letting me use his FB station. . . . **ZW5B**.

TOP SCORES

WORLD Single Operator All Band

CN2R	20,938,680
D4B	20,433,438
8P1A	16,250,784
A61AJ	15,272,745
P49Y	10,149,492
GI1W	9,836,574
EA9LZ	8,196,512
FS/AH8DX	8,157,456
K4ZW	7,583,034
KQ2M/1	7,506,464

28 MHz	
LU1HF	2,060,856
LU6ETB	1,902,470
ZV1R	1,390,940
9Y4NZ	1,215,643
9J2KC	1,061,595
ZV5A	1,006,264

21 MHz	
PX5E	2,280,502
OK1RI	1,369,717
VP5DX	1,336,838
9A1P	1,147,578
OH2BH	959,379
KG4WW	882,691

14 MHz	
D44TD	2,570,282
HK1XX	1,520,225
EY8MM	1,506,546
SO2R	1,376,543
C40M	1,374,208
YZ3A	1,220,138

7 MHz	
F6CTT	668,763
P43P	603,000
YT7A	590,975
SN7Q	586,392
YT0A	576,345
VP5KE	528,082

3.7 MHz	
SP3GEM	391,006
LX7I	279,680
AA1BU	237,600
UT3UA	153,104
EO6F	146,744
S57O	139,700

1.8 MHz	
OZ1DD	106,344
S57M	100,964
OH0NL	95,628
OK1DX	95,408
PA3GCV	94,527
IV3OWC	69,186

Low Power All Band	
SU9NC	9,498,214
PJ4J	8,759,204
FG/K9NW	8,122,188
HI3TEJ	3,834,030
CT7B	3,511,185
EA7RM	2,961,569
HK3JH	2,776,950
XE1CQ	2,751,308
N1UR	2,624,600
WA1S	2,298,622

28 MHz	
ST2T	1,346,264
LU5EML	693,986
L44DX	653,568
LU3HIP	643,236
PY2SBY	597,600
EA7FTR	569,736

21 MHz	
HC1JQ	1,134,045
ZP5MAL	1,075,235

V31LZ	975,069
ZX2B	922,194
FM5FJ	782,973
YC3BDJ	630,605

14 MHz	
P43E	923,494
YV5KG	655,796
9A7D	520,128
SP3SLO	480,339
SP4R	450,369
BD5RT	407,456

7 MHz	
CO2JD	113,587
K3BU/2	99,691
Z32XA	86,526
S54A	80,154
RU0SN	76,557
T94FC	68,208

3.7 MHz	
SP5KEH	105,436
SP4ZO	72,384
T93Y	67,486
LY1DT	65,360
S53F	61,918
YZ1EW	59,128

1.8 MHz	
YM0T	59,472
Z33F	34,255
SP6IHE	29,920
S54W	27,216
SP4XQN	18,038
9A7ZZ	17,766

QRP All Band	
P40A	4,707,598
F5BEG	906,796
N4KG	821,601
LY4XX	804,174
KA1LMR	752,400
DF1DX	627,644
EA8TX	595,680
SK3W	502,320
KO1H	492,690
UA3BL	422,784

Assisted All Band	
P40W	9,369,348
3V8BB	8,781,750
FM5BH	8,606,550
K3OO	6,651,964
W2RE	6,576,750
RG9A	6,511,351
K3WW	5,850,670
5H3HK	5,786,933
TM7F	5,722,884
K11G	5,710,042

Multi-Operator Single Transmitter	
IH9P	20,849,868
CQ9K	18,726,200
FY5KE	18,572,960
5B/AJ2O	17,280,600
9Y4ZC	15,464,764
VY2ZM	12,768,304

Multi-Operator Two Transmitter	
VP2E	40,907,104
PJ2T	24,139,776
CT9L	21,153,918
IR4X	18,385,620
K3LR	18,382,950
PS2T	16,926,789

Multi-Operator Multi-Transmitter	
EA8ZS	44,388,630
HC8L	38,782,625
FP/VE7SV	26,094,185
KH7X	25,602,753
9A1A	21,947,520
V26B	20,472,858

EUROPE Single Operator All Band

GI1W	9,836,574
GW4BLE	6,535,274
S50A	6,413,199
ES5TV	6,065,520
M6T	6,038,400
GM7V	5,948,712
DJ5MW	5,536,256
DJ4PT	5,491,016
RK4FF	5,301,682
S57DX	4,919,460

28 MHz	
ZA/OH2BH	829,521
LZ1NG	644,736
CT1EEN	574,842
LZ9X	475,577
G0AEV	468,769
US5D	367,748

21 MHz	
OK1RI	1,369,717
9A1P	1,147,578
OH2BH	959,379
OH0V	802,608
SN8V	686,565
YT1BB	675,078

14 MHz	
SO2R	1,376,543
YZ3A	1,220,138
OH8NC	1,071,465
T97M	1,060,320
LY7Z	1,051,932
EA4KR	996,672

7 MHz	
F6CTT	668,763
YT7A	590,975
SN7Q	586,392
YT0A	576,345
SO6X	499,044
MI0LL	361,050

3.7 MHz	
SP3GEM	391,006
LX7I	279,680
UT3UA	153,104
EO6F	146,744
S57O	139,700
IK5ZTW	118,320

1.8 MHz	
OZ1DD	106,344
S57M	100,964
OH0NL	95,628
OK1DX	95,408
PA3GCV	94,527
IV3OWC	69,186

Low Power All Band	
CT7B	3,511,185
EA7RM	2,961,569
LY9A	2,135,931
UA4FER	2,045,730
9A7P	1,631,019
IT9ESW	1,580,845
RV3FF	1,576,328
EA3GHZ	1,475,581
EA1WS	1,462,107
RW3GU	1,369,500

28 MHz	
EA7FTR	569,736
T99W	405,288
F4BHW	379,463
EA7HBP	330,518
CT2GQN	287,472
9A5KV	270,253

21 MHz	
HG3M	510,523
S55W	418,965
SZ5Z	416,028

Z37M	411,983
UX0IB	334,126
J43J	273,700

14 MHz	
9A7D	520,128
SP3SLO	480,339
SP4R	450,369
T92D	379,925
SZ5U	334,695
S58WW	331,344

7 MHz	
Z32XA	86,526
S54A	80,154
OL6T	67,608
UA1ANA	66,768
YT1VP	46,656
RU6FA	38,364

3.7 MHz	
SP5KEH	105,436
SP4ZO	72,384
T93Y	67,486
LY1DT	65,360
S53F	61,918
YZ1EW	59,128

1.8 MHz	
Z33F	34,255
SP6IHE	29,920
S54W	27,216
SP4XQN	18,038
9A7ZZ	17,766
OM4JD	15,984

QRP All Band	
F5BEG	906,796
LY4XX	804,174
DF1DX	627,644
SK3W	502,320
S59D	305,502
DF3AX	294,680
EA1GT	288,672
IK5RUN	250,572
RN6AL	239,882
HA1CW	233,496

Assisted All Band	
TM7F	5,722,884
LY4A	5,406,346
OH0Z	4,256,166
DJ2YA	4,175,600
OK2FD	3,716,264
UW2M	3,387,282
RX4HZ	3,362,978
YL2KO	3,122,834
UW8M	2,945,169
ON4UN	2,902,592

Multi-Operator Single Transmitter	
OM8A	10,248,992
OE2S	10,167,780
OM7M	9,770,256
OK5W	9,692,032
RW2F	9,150,790
S50C	8,279,477

Multi-Operator Two Transmitter	
IR4X	18,358,620
9A7A	15,148,830
UU7J	12,547,262
CT8T	12,530,845
HG6N	12,364,088
RT9W	11,399,373

Multi-Operator Multi-Transmitter	
9A1A	21,947,520
DF0HQ	18,678,975
DF0CG	17,619,740
OT4A	17,086,281
MD4K	15,486,066
LZ9W	14,002,960

28 MHz	
K4WI	545,416
K6EID/4	152,091
W7UPF	128,225
K8OZ	89,436
KT3RR	77,063
W4CEO	62,727

21 MHz	
N2BA	440,320
W6AFA	242,724
N2GM	235,416

USA Single Operator All Band

K4ZW	7,583,034
KQ2M/1	7,506,464
K5ZD/1	7,146,952
W9RE	6,216,815
K3CR	5,184,258
K3ZO	4,564,235
AA1K/3	4,546,820
W3BGN	4,462,850
N2IC/5	3,802,050
K7RL	3,524,400

28 MHz	
W4ZV	872,785
NN1N	561,058
N4BP	516,999
K0EJ/4	352,006
NA5S	334,776
W7UT	230,892

21 MHz	
NG2X	863,443
N7DD	689,727
N3HBX	662,315
K4JNY	484,473
KC7V	375,804
K5AM	284,487

14 MHz	
W7WA	992,880
KX7M	342,540
K6HNZ	232,713
K5ZO	201,299
W8TWA	181,260
W8CZN	178,866

7 MHz	
K4XS	372,608
W6YI	119,106
N4NX	59,724
W2XL	48,756
W7OT/1	31,995
AA4VV	30,303

3.7 MHz	
AA1BU	237,600
AA4MM	51,700
K5RX	38,380
K7SSS	17,545
W8AEF/7	7,344
K7EC/5	1,175

1.8 MHz	
W2MF	5,289
W2VO	4,928
KK4SI	2,940
W3GH	2,196
W7IZL	1,840

||
||
||

*W82ZTH	641,572	579	106	322	AA4V	1,064,196	1002	107	305	*W4TME	17,578	76	36	58	*K0NW/6	33,354	131	47	55
*N2MUN	530,725	647	89	230	N1GC/4	1,062,105	875	112	359	*N4TKD	17,496	96	23	58	*K6BIR	24,624	127	37	44
*WA2JQK	526,008	589	86	286	W2YE/4	986,455	872	101	314	*WBKAS/4	15,714	81	26	55	*K6CSL	15,633	84	39	46
*W3TB/2	474,801	584	77	226	N8PR/4	984,312	847	109	332	*KT0P/4	13,608	71	30	54	*AD6FR	14,007	74	29	40
*KV2M	331,516	459	62	206	NA4K	965,760	943	92	292	*K4FTO	12,750	82	31	54	*WA6NOL	13,689	74	33	48
*K2WA	306,698	423	77	189	K4IE	917,352	860	100	311	*KI4VB	11,532	72	17	45	*KI6PG	12,894	84	32	35

*WB200Q	142,317	302	46	143	*J2F4	908,500	841	99	296	*KAGR/4	9,135	68	22	41	*KK6TV	5,243	61	22	27	
*KM2L	131,950	275	44	131	KRAM	889,062	785	106	320	*NBUX/4	6,095	40	14	39	*AE6RR	2,024	38	23	23	
*NA2NA	122,100	239	46	139	AG4W	801,608	786	94	294	*N1WI/4	4,785	50	20	35	*N6MAW	1,749	42	13	20	
*W2REH	118,360	212	51	169	K4SSU	715,003	951	84	223	*K4RFK	4,704	46	20	28	*N06E	1,586	38	23	20	
*WW2P	107,975	237	48	127						(OP: NA4BW)	*WA4WPD	3,250	34	20	30	*W8SJ	897	15	12	11

*Y5/2	107,562	222	54	143	*YE	713,657	717	88	291	KD4JLE	2,001	35	11	18	*K6ZCL	522	11	9	9				
*WA2LXE	104,525	234	52	133	WB2QLP/4	688,160	789	84	264	K04PK	1,620	38	12	18	*KM6Z	28	62,608	274	25	61			
*N2MTG	103,014	254	54	123	WC4E	599,325	720	80	225	W40CE	1,610	27	13	22	*N6M7	28	51,961	233	26	65			
*W2YK	93,617	197	40	139	K1K0/4	556,387	616	79	258	*AK4P	1,479	21	11	18	*WA7BNM/6		48,870	208	26	64			
*W2TZ	91,572	225	37	119	N4AA	556,140	579	95	250	*W4WNT	504	13	5	9	*W6AOWM		3,332	42	13	21			
*N2UM	89,573	196	53	134	N4ZZ	535,135	906	56	159	*KS4JB	10	5	4	5	*W6AFA	21	216,499	662	34	109			
*WA2RY	80,324	194	50	122	WD40AR	452,375	543	84	245	*K4WI	28	545,416	1338	32	126	*W6AFGV		29,448	159	23	49		
*WB2KLD	73,305	206	38	97	K4PV	421,911	706	78	181	*K6EID/4		152,091	425	28	101	*N3LO/6		160	7	4	4		
*K2SGH	63,375	146	53	116	KU4FP	419,785	528	68	227	*W4CEO		62,727	220	26	77	*N2BL	14	1,680	49	10	11		
*KC2LYQ	58,590	196	36	99	N4ZC	416,885	508	73	228	*KF4MK		20,328	114	21	56	*KU6T	7	1,344	33	9	15		
*WA2MCR	55,890	179	52	110	N4UH	408,508	543	76	216	*WA4BW1		5,507	49	14	33								
*N2RD	42,161	137	39	94	W4HJ	403,580	496	84	256	*WA4FXJ	21	12,931	82	19	48	K7RL	A	3,524,400	2706	147	387		
*KB4VL/2	40,005	156	30	75	K4VV	398,412	422	88	290	*W9IGJ/4	14	71,640	325	27	93	K5RR/7		1,766,370	1381	136	349		
*K2ZR	39,788	175	22	76	K4ADR	379,291	486	80	239	*K2SOH/4		40,281	196	20	67	AA7A		1,145,928	929	111	345		
*KC2HZW	28,340	141	37	72	K4FYM	376,623	543	60	201	*K5AVKQ		4,854	53	14	31	K57H		1,115,316	1113	124	290		
*N2QOR	26,790	113	28	66	W2OO/4	367,428	501	75	193	*KF4DVF		204	18	7	10	N5LZ/7		596,148	849	88	214		
*W2OP	25,561	115	33	75	N4MM	360,784	462	95	253	*N0AK		20	2	2	2	K7VI		509,700	717	95	205		
*WV2ZOW	21,432	97	38	76	K57RO/4	268,400	420	60	184	*N4LJ	3.7	35,898	179	19	74	K7ABV		377,136	508	81	210		
*K2ZB	20,370	96	30	67	K4YK2	266,926	460	60	182	N2IC/5	A	3,802,050	2362	155	440	K07X		353,210	469	84	202		
*KC2EVL	19,360	85	25	63	W9W1/4	241,200	398	66	159	W5Z0		1,123,360	909	125	347	N6ZJ/7		315,900	433	97	227		
*K2UF	18,786	109	17	45	AB4EJ	192,252	376	58	164	N5D0		1,093,686	948	114	324	W7UJ		312,984	449	85	191		
*K2MY	16,368	70	28	65	K4IHM	187,712	309	46	178	N5ZK		756,360	917	83	247	W6AEA/7		266,328	396	73	170		
*N2OPW	11,780	82	12	50	WB2LEZ/4	184,386	303	68	169							K7LJ		223,652	377	70	151		
*WA2IAU	11,753	64	28	45	N4EHJ	155,431	347	52	171							N7FE		198,450	407	82	163		
*W2ARP	9,424	75	14	48	W7OF/4	154,700	289	66	137	KUJS		469,610	561	84	227	KF7IQ		167,580	364	86	142		
*N2LOQ	8,760	67	20	40	W4LFD	117,688	248	51	172	KSYYA		461,100	700	66	199	W7GN		135,470	292	68	122		
*N6MWX/2	7,490	72	30	40	N4GI	114,935	233	48	133	N5PA		434,070	498	84	231	K7EG		132,540	293	60	128		
*WB2SXY	6,720	61	22	42	K4CEB	106,506	239	57	126	NA4M/5		413,632	556	79	202	N7BF		129,923	294	60	113		
*K2AMI	5,307	54	23	38	AA3VA/4	97,888	233	46	106	AB5C		376,856	493	79	210	K7CUP		128,700	280	58	137		
*N2EK	4,100	35	19	31	W4RD	80,634	169	51	127	W3TZ/5		268,567	468	79	204	N7TL		110,517	237	61	126		
*KA2BKX	2,590	34	12	25	NC4MI	77,571	200	45	124	KS5V		130,368	279	59	133	K17AD		93,120	178	68	126		
*W2IAIV	2,294	28	15	22	K4AMC	67,308	186	48	94	N5LYG		117,789	196	72	165	KS7T		70,819	184	53	98		
*K2ZAF	1,120	20	12	16	K4PHE	64,220	160	49	120	W75U		116,280	257	59	112	W7YS		70,810	202	55	91		
*K2BLD	864	21	9	15	N4TL	58,366	163	49	105	K5IB		67,196	180	47	110	W7MGC		68,952	219	50	86		
*W2MSR	726	19	9	18	N2BT/4	57,477	149	57	104	K85ZF0		32,256	145	32	64	K7AEK		47,652	182	48	84		
*N2LJ	10	7	6	6	K4DXA	53,998	158	37	96	K5SF		30,160	113	36	68	AJ7Y		45,696	216	33	51		
*KS2G	28	41,076	195	19	65	WBRJL/4	37,023	121	40	83	K7RB/5		2,880	33	14	22	WM7A		28,119	135	35	68	
*N2BA	21	440,320	998	33	127	K4BP	22,493	108	25	58	NASS	28	334,776	913	34	114	AB7E		27,032	98	35	74	
*N2GM		235,416	686	28	108	K4CC	16,720	76	21	59	N5VY5		55,460	211	29	89	W7KKR		26,915	120	50	66	
*K2MFY		206,250	516	31	119	K7CS/4	8,946	57	25	46	KSAM	21	284,487	764	38	123	K7MY		14,952	99	36	48	
*KX2S		110,744	312	27	100	KC9LC/4	8,487	57	26	43	KSZ0	14	201,299	640	34	115	W7LKG		11,753	62	29	44	
*WB2OSM		75,447	292	22	79	NAEHT	3,701	109	41	71	K5RX	3.7	38,380	216	23	72	W7UT	28	230,892	596	31	111	
*K2BOW		41,265	201	24	68	WAAGLH	528	15	12	12	K7EC/5		1,175	26	10	15	NJ7I		165,834	590	29	82	
*W3EH/2		13,396	85	16	52	W4BCG	380	12	9	11	*NSAW	A	1,464,408	1102	136	380	K7OX		104,751	459	27	76	
*WB2DVU		7,884	57	14	40	W4ZV	872,785	1837	33	140	*N580		1,313,671	1071	115	352	N7DD	21	689,727	1516	38	145	
*K3BU/2	7	99,691	315	28	103	N48P	516,999	1284	29	118	*WDSK		1,232,440	1036	110	330	KC7V		375,804	936	33	123	
*N2XK		26,228	132	16	63	KDEJ/4	352,006	909	31	115	*WASIYX		252,948	443	66	148	W7AYY		11,846	76	21	50	
*K2YEH	3.7	4,264	52	10	31	AJ3G/4	29,565	207	20	61	*KDSLNO		237,390	384	74	172	W7WA	14	992,880	1925	40	157	
						K4JNY	484,473	1193	34	125	*KC5LK		137,361	285	63	148	W7EB		72,215	413	29	72	
K3CR	A	5,184,258	2862	150	504	W4ARM	115,128	361	27	96	*N5YK		85,478	216	50	108	KD7O/7	7	3,444	44	15	26	
						K9DM/4	55,969	211	21	76	*WBSIZD		64,468	198	52	90	K7SSS	3.7	17,545	177	19	36	
K3Z0		4,564,235	2941	125	434	K4VLUD	47,564	199	24	70	*NDSQ		55,272	153	47	100							
AA1K/3		4,546,820	2741	137	485	K4SV	28,080	129	23	57	*W6TRO/5		46,480	162	51	89	WBAEF/7		7,344	74	18	30	
W3BGN		4,462,850	2658	145	477	K4XS	7	372,608	937	30	112	*KESLQ		37,942	112	47	75	W7LZL	1.8	1,840	154	10	13
W3CC		1,479,360	1033	113	423	N4NX		59,724	181	28	98	*WKSQ		34,080	118	43	77	*K8IA/7	A	754,000	806	117	260
K3TEJ		814,846	779	93	293	AA4VV		30,303	161	17	74	*W5WRE		33,300	159	35	76	*N7BK		374,400	540	76	184
KB3TS		788,970	802	89	301	W4ATL		8,085	58	15	40	*AF5Q		32,391	172	65	118	*KE7RT		321,948	448	85	186
WA2C/3		773,432	856	94	280	AA4MM	3.7	51,700	225	19	75	*K0CIE/5		25,714	112	30	56	*N7LOX		259,413	453	81	150
N3UM		760,410	771	79	276	KK4SI	1.8	2,940	47	9	26	*KAGEYH		25,488	116	40	78	*N7ZG		230,000	391	75	155
N3RJ		746,452	814	92	279	*NR3X/4	A	1,237,530	1165	99	327	*WASKQU		16,564	96	34	48	*WU7X		146,328	340	58	143
K4JLD/3		735,420	724	108	312							*KCSYSM		12,075	87	28	47	*K7TR		127,187	293	67	126
N3KR		588,540	654	83	257	*KA8D/4		727,636	741	90	274	*KD5OWO		11,315	80	30	43	*N7VZU		121,250	251	59	135
K3QDV		455,700	664	71	239	*K4GKD		655,284	684	94	254	*N5D7T		9,984	64	23	41	*W7ZMD		113,810	321	60	130
W3FVT		442,980	572	80	241	*AA4RX		648,528	665	81	273	*WASSWN		9,501	83	17	36	*W7TMT		108,480	267	58	102
N3YA		336,774	557	57	165	*W1EL/4		565,348	608	81	250	*KD5VHL		8,976	74	33	55	*K7ACZ		101,816	230	61	117
K3VA		324,870	508	55	183	*K4JE		558,312	689	82	262	*N7VJ/5		7,700	67	22	33	*K7FTY		96,624	214	57	119
W3HVQ		314,682	491	79	214	*WA4DOU		540,496	601	83	249	*K5PAX		2,448	27	16	18	*W7YVK		69,952	209	55	89
N3YW		288,222	472	60	182	*AB4GG		471,820	614	80	230	*KB5REX		1,590	19	13	17	*K0VSV/7		67,596			

Visit Our Web Site

JH1AZO	28	157,263	703	30	59
JH1OCC	"	151,129	508	35	86
JL1JHN	"	117,549	453	35	76
JJ1RDX	"	99,452	458	30	64
JE1COT	"	4,160	56	12	14
JQ1NGT	21	106,776	449	30	84
JE1LFX	14	274,065	718	37	114
JR1WVY	"	24,192	143	27	57
JH1AEP	7	219,604	740	35	89
JA1ANA	"	3,034	25	14	20
*JS10YN	A	625,500	850	106	194
*7K3OWM	"	434,280	731	86	149
*JH1UUT	"	263,600	544	71	129
*JG1TVK	"	244,261	434	89	184
*JG1OWV	"	223,310	350	109	165
*JA1GYO	"	215,845	348	82	163
*JA1RKL	"	203,232	390	82	150
*JA1GLE	"	182,129	402	80	141
*JA1TMG	"	167,700	390	62	110
*JE1SLP	"	166,123	371	75	143
*JA1KK	"	153,161	346	81	131
*JA1XPU	"	109,005	267	67	102
*JA1Z	"	93,656	214	72	112
*7J1AIL	"	91,448	268	58	103
*JA1HY	"	69,522	236	62	93
*JP1QDH	"	61,570	177	43	88
*JH1FNU	"	46,032	185	35	77
*JA1XUY	"	44,892	153	50	66
*JH1RDU	"	24,288	118	34	54
*JA1CP	"	21,012	111	38	64
*JA1HG	"	18,105	114	34	51
*JH1OLB	"	12,328	70	31	36
*JK1LSE	"	11,786	81	36	47
*JH1RMH	"	11,124	80	29	32
*JR1MRG	"	10,388	80	24	29
*JA1APX	"	8,142	56	28	31
*JA1LBZ	"	5,336	53	22	24
*JE1COB	"	3,500	35	18	17
*JE1PJR	"	2,825	45	16	12
*JA1PZK	"	2,009	37	18	23
*JG1FGL	"	1,152	26	12	16
*JH0NVX/1	"	364	10	6	8
*JA1BPA	28	129,591	434	34	85
*JH1HFJ	"	43,008	208	28	56
*7N2UOC	"	34,707	230	25	44
*JJ1LGO	"	32,830	182	27	43
*7K2PBB	"	11,752	102	22	30
*JA1AAT	"	4,419	46	21	25
*JM1KWI	"	1,245	35	8	7
*7N1BHO	"	105	7	3	2
*JA9SCB/1	21	148,352	447	33	89
*7K4XNN	"	134,310	507	31	79
*7L3KJY	"	48,327	194	27	62
*JE1RRK	"	36,573	203	23	50
*JA7QDX/1	"	31,080	177	23	47
*JA1XMT	"	28,712	183	26	48
*JR1SGU	"	23,616	138	22	50
*JH1KW	"	10,260	100	21	36
*JH1FOP	"	10,100	83	18	32
*JA1ANF	"	7,089	53	18	33
*JK1BI	"	6,854	59	16	30
*JA1DBG	"	5,513	58	18	31
*JG1GCO	"	1,227	22	12	19
*JG1TCV	"	947	20	6	14
*JA1NNF	"	620	18	9	11
*JJ1WWL	"	35	6	2	3
*J01BUM	"	23	4	3	2
*JH1FDF	14	224,700	652	37	103
*7K1PTD	"	6,240	63	21	39
*JA1KVT	7	27,300	140	26	58
*JH1APZ	"	12,415	90	23	42
*JE1SPY	3.7	1,406	39	10	9

JJ2KXK	A	1,168,398	1194	120	258
JA2BNN	"	1,139,525	1460	108	232
JA2BOQ	"	225,888	461	73	135
JJ2CJB	"	208,120	356	74	146
JA2FSM	"	155,006	341	71	123
JJ2PUG	"	40,250	141	43	72
JA2KVD	"	23,200	85	38	62
JJ2UNR	21	599,898	1608	37	125
JF2FIU	"	41,208	236	24	44
JH2BTM	"	13,846	116	16	30
JA2XCR	14	114,779	345	35	98
*JA2PFO	A	252,860	445	85	150
*JA2KPW	"	116,937	269	71	112
*JA2VZL	"	90,576	254	56	88
*JA2GHP	"	86,614	290	46	81
*JQ1AHZ/2	"	61,360	236	44	74
*JK2VOC	"	37,281	152	51	78
*JA2KKA	"	1,134	21	13	14
*JG2SON	28	232,102	815	34	79
*JG2TKH	"	97,644	358	31	72
*JA2JTN	21	45,396	224	27	51
*JA2KPV	"	4,004	37	16	28
*JG2REJ	"	2,158	33	10	17
*JH2LFX	"	72	5	5	3
*JG2KKG	14	150,084	467	36	96
*JF2WXS	7	3,828	48	15	29
*JE2OTM	3.7	1,100	29	10	12

JS3CTO	A	3,618,983	2932	137	320
JA3USA	"	2,504,882	2127	136	322
JR3NZC	"	904,430	1163	103	195
JA3LEZ	"	65,379	226	41	70
JA3ORD	"	54,793	205	42	89
JA3ETD	28	21,650	142	27	48
*JH3CUL	A	268,736	457	92	180
*JA3DAY	"	63,294	170	61	93
*JL3RDC	"	40,352	166	37	60
*JH3OXM	"	10,192	85	17	39
*JM3HYL	"	1,076	31	19	19
*JF3BFS	28	181,260	628	33	81
*JA3KDJ	"	95,994	92	28	47
*JA3WA	"	4,100	44	17	24
*JH3RY	21	291,782	880	32	90
*JH3OSH	"	65,790	264	30	72
*JA3BBG	"	11,702	94	17	35
*JR3KAH	"	5,986	56	21	37
*JG3QCF	"	2,964	47	18	21
*JA3FZJ	"	2,011	33	13	19
*JH3BDG	14	990	22	9	13

JH4WUZ	A	167,919	310	77	146
JA4DHN	"	107,325	222	77	145
JA4E2P	"	20,516	96	38	54
*JA4AGR	A	95,555	266	51	94
*JA4BA	"	36,902	152	48	70
*JA4GPA	21	63,154	261	26	65
*JA4DWG	"	37,825	167	25	64

JA5CPO	A	53,789	196	49	100
JA5APU	14	100,245	351	35	88
JA68GA	28	207,807	268	33	79
*JM6BYV	A	1,656	33	14	8
*JA6FTJ	28	44,355	247	28	57
*JH6FTJ	"	25,960	175	23	32
*JE6JVH	21	28,993	188	24	54
*JG6XMM	"	10,602	95	19	38
*JA6BIF	"	9,576	84	21	35
*JG6TXU	"	4,270	68	17	35
JA7NVF	A	2,794,697	2766	123	286
JH7BZR	"	16,524	183	16	18
JA7OWD	28	541,020	1484	37	105
JG7KMB	"	139,308	568	30	64
JA7COI	14	74,580	269	34	76
*JH7VNI	A	359,784	558	87	176
*JA7BME	"	167,535	311	77	142
*JA7DNO	"	60,375	230	37	68
*JH7WPV	"	16,450	101	25	45
*JA7JH	28	22,917	121	32	60
*JM7EPG	"	1,695	30	12	12
*JP1JIP/7	21	55,383	303	27	63
*JR7LVK	"	24,910	147	23	52
*JA7ADV	"	11,733	107	22	38
*JF7GDF	"	550	18	11	11

UN6LN	14	309,600	872	33	117
*UP6P	A	1,515,094	1493	113	321
*UN8GV	"	1,416,012	1682	86	262
*UN2E	"	360,360	521	76	210
*UN7PCZ	28	199,251	653	27	90
*UN7JX	14	237,258	693	39	108
HL5UOG	A	200,196	448	88	157
HL3AMO	3.7	8,526	163	16	26
*DS5KJR	A	78,520	405	64	87
*HL5AP	"	39,266	178	44	71
*DS5DNO	"	4,545	59	20	25
*HL2FDW	21	254,290	932	30	88
*HL2JH1FXF	14	15,000	196	22	38

EX9A	A	7,270,560	4945	134	460
EX80	"	66,259	196	61	112
EX8AA	"	44,175	278	26	49
EX2T	28	254,280	1024	23	81
EX2X	14	284,528	961	33	100

9V1AL	21	220	11	5	5
*BNDF	A	686,724	1565	78	189
*BU2AI	21	15,378	111	22	44
EY8MM	14	1,506,546	2833	40	167
EY7AF	3.7	16,514	152	10	36
*EY8F5NHJ	A	67,540	274	38	80
*EY8BA	"	11,713	120	13	40
*EY7AV	21	206,092	657	30	104

HS0ZCG	A	86,310	229	73	137
HS0ZDR	21	73,416	289	32	82
*HS0ZEE	A	595,128	732	104	258
*HS1PDY	"	157,620	350	63	122

*EZ8CW	A	32,573	159	37	69
ZC4LI	A	144,160	707	18	57

OE3I	28	259,458	742	38	128
*OE6MDF	A	343,970	592	81	214
*OE6OLK	"	52,681	267	38	101
*OE5WWL	28	5,160	50	15	28
*OEBSKQ	21	233,496	787	31	110
*OE7AJT	14	128,800	755	23	92

*CU2JT	A	149,376	327	53	139
*CU2AF	28	199,760	1187	22	88

EA6LP	A	587,902	967	85	258
EA6TU	"	206,340	540	70	215
EA6AF	"	39,786	206	40	74
EA6AZ	14	194,304	937	32	100
*EA6TC	A	300,472	782	65	189
*EA6LY1DF	"	41,552	214	32	74
*EC6UB	"	1,320	30	14	26
*EA6EA	28	2,683	44	14	24

EU4LY	A	403,440	1003	67	261
EU1AD	"	264,729	779	50	187
EW2AA	"	38,870	142	42	88
EU7SA	"	28,542	103	45	89
EW8MW	14	639,350	2018	40	150
EW7LO	"	63,661	628	18	65
EW3EW	3.7	104,576	1156	15	71
EU1PA	"	56,628	693	12	66
EU6EU	1.8	57,408	771	9	60
*EW3LN	A	204,323	583	72	217
*EW6MM	"	22,698	152	31	86
*EWBRX	"	4,560	79	15	45
*EU1DX	"	644	14	10	13
*EU6FF	28	29,986	170	25	69
*EW1ABF	"	16,348	173	13	48
*EW6DX	"	5,390	59	15	34
*EW1CO	"	4,368	48	13	26
*EW6AW	"	3,496	48	14	32
*EW6EW	21	9,610	89	14	48
*EW6AF	14	230,520	1233	34	182
*EU2MM	"	142,754	660	33	104
*EW6AL	"	41,705	334	21	74
*EW6GL	"	12,584	172	9	43
*EW6DX	"	4,176	94	10	38
*EU2AA	"	513	13	9	10

106 • CQ • August 2005 Visit Our Web Site

August 2005 • CQ • 107

*S520T	A	1,062,502	1288	103	303	*EC1AMC		440	22	6	14	UT7NY		11,300	244	7	43	KH6FI		393,108	858	69	95	BRAZIL					
*S57MTA		377,136	851	57	159	*EA1MR	14	135,000	844	22	86	*UV1G	A	1,011,560	1759	90	328	KH6BK		161,040	270	83	161	ZX7U	A	797,524	1012	79	234
*S57U		272,616	516	72	224	*EA7TN		99,830	502	29	105							AH6JR	7	184,860	916	28	51						
*S58RU		213,530	551	62	200							*UX4UA		488,325	783	90	293	*KH6WDCN	A	253,539	646	60	83	PY2KM		624,160	1196	55	133
*S51DX		122,180	424	48	157	*EA1EJ		80,464	593	23	84	*USQHU		379,148	831	66	242	*NH6YK		40,341	149	46	67	PT2ZEG		504,441	1191	48	105
*S57J	28	54,285	197	31	74	*EA1ASG		67,628	375	26	90	*US6IMA		276,573	604	69	220	*AH6HH		27,234	123	42	47	PY3PA		402,975	779	68	131
*S55W	21	418,965	1241	36	119	*EA3CS		39,004	277	23	75	*UT8IT		270,438	725	60	222	*NH7FY	21	93,582	558	28	45	PY2GA		368,188	798	57	109
						*EA1GAR		8,970	119	16	49	*UW5U		257,712	729	64	209						PY5JO		327,660	956	40	89	
*S51FB		14,448	121	13	43	*EA2AFE		1,533	42	10	25											PV2M		299,488	650	59	137		
*S5BWW	14	331,344	1231	32	112	*EA3EBN		132	11	3	9	*UR6GS		220,096	555	68	238	YB1AR	A	273,632	441	76	196						
*S5BR		281,820	1089	34	120	*EA3KT	7	18,720	208	13	61	*UR6MX		199,789	475	56	185	YB2DGR		96,250	218	51	124	PP5WG		156,420	407	54	104
*S54A	7	80,154	482	24	98	*EA1EY		9,072	108	13	50	*USSEK		176,934	526	64	158	YCBJDW/1		93,984	274	42	90	PY2TO		72,776	612	19	25
*S53F	3.7	61,918	672	15	68	*EA4WC		7,812	109	11	51	*UY5TE		141,975	440	52	173	YB2EMK		76,258	175	66	116	PY3MSS		13,936	96	27	40
*S51NA		41,832	468	14	69	*EA1ASC		5,175	90	12	57	*UY2UQ		139,590	431	61	174	YBDAJR		40,680	138	36	77	ZV1R	28	1,390,940	2892	36	134
*S57WT		28,248	478	9	57	*EASADM		1,862	38	10	15	*USQKW		123,966	453	52	161												
*S54W	1.8	27,216	466	8	55	*EA2BLK		720	29	3	21	*UT8EL		55,845	293	31	122	YC3OX		29,103	206	34	55	ZV5A		1,006,264	2404	33	118
						*EA5AFY	3.7	20,790	289	10	56	*UR4UGL		54,285	287	38	127	YBDAI	3.7	1,242	23	11	16						
EA1AKS	A	1,320,732	1853	99	279	*EASEOR		11,977	214	8	51	*UU7JN		49,138	186	48	110	*YB5ZAP	A	236,316	492	63	125	PY2NY	14	1,074,798	2216	39	135
EA3ELZ		1,319,073	1443	107	376	*EA2AP		5,684	110	6	43	*UR3HC		49,136	175	53	95						PX5E	21	2,280,502	4058	40	163	
EA7HY		773,120	1280	74	246	*EA1QA		1,568	51	5	27	*UT5UJY		42,120	230	32	98	*YB5WZJ		217,664	573	61	91						
EA3DUM		691,385	1212	72	193	*EA7HE		799	44	5	16	*URSHAC		41,600	177	38	62	*YB5QZ		189,538	364	56	136	PY2NY	14	1,074,798	2216	39	135
EA3CCN		246,477	642	63	168	SPAIN						*UU5JN		20,584	158	33	91	*YB5QZ		189,538	364	56	136	PT5A	21	2,280,502	4058	40	163
EA1FBU		246,330	592	60	178							*USSZF		12,350	100	28	67	*YB5QZ		189,538	364	56	136						
EA3KU		237,442	616	60	167	SA5C	A	1,814,140	1811	129	481	*USQKF		10,875	114	22	53	*YB5QZ		189,538	364	56	136						
EA3NB		39,750	125	47	78	SA4F		1,639,820	1852	117	413	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136	PY2DJ		296,620	946	33	93
EA4BT	21	91,902	538	25	81	SM5Q		1,294,025	1514	117	382	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136	PY77Y	7	163,944	617	22	77
ED7VG		39,055	494	24	83							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
												*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
EA4KR	14	996,672	2705	40	152							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
EA3AKY		413,244	1439	36	120	SM7CQY		819,456	1086	86	298	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
EA3ATM	3.7	77,940	604	15	75	SM7BJW		242,824	418	71	168	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
EA7ATX		29,799	287	13	64	SM3BIZ		205,020	425	73	233	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
EA5JK	1.8	12,395	202	10	57	SM6IQD		143,514	378	59	179	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
EA1DDO		6,615	110	7	38	SM6JUY		87,629	301	57	161	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA7RM	A	2,961,569	2477	115	442	SM6M		80,028	360	46	125	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA3GHZ		1,475,581	1537	105	358	SK3A		72,488	271	43	121	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA1WS		1,462,107	2025	76	263							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA3NW		772,647	927	88	233	SM3B		35,511	137	45	88	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA3KN		726,102	916	86	291							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA1APV		677,376	845	93	291	SM2YIZ		19,910	158	24	86	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA7IA		570,917	979	75	243	SM1TDE		1,517	24	18	23	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA3OR		486,108	767	85	292	75SS	28	55,890	230	26	89	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA1OT		471,295	1067	59	150							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA3AKA		465,740	965	66	226	SLDW	21	478,780	1219	37	148	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA1BLI		436,500	952	65	160							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA5ASF		412,764	742	71	247	SM6X		161,920	680	30	98	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA1HV		409,838	1092	63	223							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA3AGB		377,264	599	80	224	SM6KV		87,465	379	33	113	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA7AA		328,986	750	70	224	SM6W	14	493,142	1722	38	131	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA3NP		311,696	728	57	185							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA1JO		306,320	621	66	214	75SC		28,623	222	22	65	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA1CS		297,388	732	66	200	SA5W	7	173,156	984	33	113	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA1CJH		292,940	490	66	236							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA3BNU		284,138	582	65	209	75SE	3.7	95,445	831	21	80	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA7TG		269,169	580	71	178							*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA1CP		258,951	595	54	155	SM6DOI	1.8	67,464	918	18	62	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA7EWX		258,912	605	60	188	*SM6D	A	775,873	1076	90	319	*UT0FT		10,164	71	28	56	*YB5QZ		189,538	364	56	136						
*EA3EYD		237,820	458	64	189							*UT0FT		10,164	71	28	56	*YB5QZ											

YV4DDK	14	178,020	506	32	97	YU1LM	*	49,640	353	22	63	N2KPB	*	258,876	482	75	249	WA1PMA/7	*	32,841	102	48	75	KAZAKHSTAN					
4M5DX	7	304,494	1313	25	89	7N4WPY	*	44,946	194	32	67	KM20	*	251,685	375	68	187	WG7Y	*	20,544	86	47	60	UN4PG	28	62,316	270	29	79
						EC8AUJ	*	40,296	196	22	70	AA2GF	*	250,749	444	66	185	W4ZE/7	*	11,730	68	17	52	TAJKISTAN					
YV5LMW	3.7	80,238	397	18	68	JR1NKN	*	39,825	223	23	52	N2CK	*	244,458	381	70	173	N7JB	*	504	10	9	9	EY8CO	A	13,440	65	44	61
YV2IF	1.8	2,586	38	8	25	EASON	*	21,996	176	17	61	K2SX	*	210,740	388	60	197	W7VV	14	143,792	358	34	118	EY8AW	*	13,216	195	24	32
*4MST	A	895,404	1047	86	246	V44/EW1AR	*	15,708	117	14	37	WF2B	*	115,440	243	48	147						EY8DO	*	8,326	112	19	27	
																						EY8WW	26	28,800	242	14	34		
*YYSJRU	*	138,757	531	40	69	OK1AJJ	*	14,750	154	16	43	K300	A	6,651,964	3205	163	585	KC3MR/8	A	1,959,951	1298	128	469	THAILAND					
*YYSAFO	*	20,592	133	28	71	RA3KEV	*	6,264	111	8	28	K3WW	*	5,850,670	3014	155	587	N8BI	*	895,390	760	101	357	HS10VH	A	16,275	86	45	60
*YYSAGT	*	7,500	70	20	40	K2PAL	*	3,808	45	6	26	AA3B	*	3,329,480	1858	133	511	W8TN	*	654,595	531	106	339	EUROPE					
*YV4YC	28	106,978	642	25	64	7K1CPT	*	3,104	42	14	18	NN3Q	*	3,102,362	1900	128	473	AA8LL	*	498,417	596	76	233	ALAND ISLANDS					
*YYSRED	*	63,126	637	18	24	SP6GNJ	*	2,442	33	12	21	W3PV	*	2,548,110	1673	117	424	N4ZR/6	*	354,000	440	74	221	OHBZ	A	4,256,166	3899	136	482
*YYSPER	21	109,710	418	24	82	JK1TCV	*	2,346	36	10	13	K3MD	*	2,515,371	1812	119	408	KD8CP	*	216,270	323	83	187	(OP: OH5DX)					
*YYSYMA	*	102,312	618	23	64	TIS/W8QZA	*	1,456	20	7	19	N3ZA	*	2,218,010	1374	127	459	K8DD	*	165,430	292	73	160	AUSTRIA					
*YVSKG	14	655,796	1962	29	105	TISX	14	97,208	366	28	88	N3AM	*	1,984,388	1326	121	420	W89Z	A	4,018,652	2088	163	559	OE4A	A	9,063,492	5118	164	640
*YVSTX	*	274,100	1013	25	75							W3GM	*	1,968,124	1283	121	441	N2BJ/9	*	2,499,196	1677	129	445	(OP: OE1EMS)					
																						OESYDQ	A	528,255	1041	84	267		
P4BA	A	4,787,598	3817	110	324	SP5DDJ	*	81,008	424	28	94	W3CF	*	1,949,634	1461	113	421	W09Z	*	1,585,446	1143	125	409	BELARUS					
						HABGK	*	42,630	339	18	69	W3QF	*	1,309,575	1019	102	373	KFY9Z	*	968,765	818	104	341	EU1SA	21	68,640	311	32	100
F5BEG	*	906,796	1146	88	319	YB2OK	*	30,874	125	34	81	K1RH/3	*	1,231,004	1078	94	327	N9ZM	*	842,734	739	102	320	EU1AZ	7	146,410	953	25	96
N4KG	*	821,601	881	93	294	CO8TW	*	29,120	178	18	62	W2UP/3	*	1,215,050	925	110	365	K9IG	*	638,480	660	82	265	BELGIUM					
LY4XX	*	804,174	995	101	366	JA9XBW	*	26,208	122	28	56	W3PT	*	1,121,115	909	107	358	K9UQN	*	599,447	680	81	236	ON4UN	A	2,902,592	2555	102	332
KAT1MR	*	752,400	807	96	304	N9ME/4	*	15,514	108	17	51	K3JG	*	990,613	902	88	333	W9GIG	*	285,498	356	88	218	ON4CAS	*	530,604	806	72	234
DF1DX	*	627,644	935	72	274	W6YJ	*	14,136	90	22	40	K3CP	*	990,450	821	99	366	K89KEG	*	181,113	339	67	152	ON4APU	14	100,584	423	30	182
EA8TX	*	595,680	953	59	181	I28EWD	*	13,910	181	11	54	NY3C	*	976,299	864	95	326	N9BOW	*	83,420	200	48	124	BOSNIA-HERZEGOVINA					
SK3W	*	502,320	827	79	265	LA8WG	*	11,429	185	10	46	N3NR	*	965,650	819	95	339	K9OR	*	41,344	115	45	91	T96Q	28	755,787	1850	39	152
						I240YP	*	6,213	102	12	45	W9GE/3	*	912,848	745	98	374	K9PG	*	3,496	33	17	29	(OP: T94DU)					
K01H	*	492,690	599	84	246	9A4OP	*	5,856	110	11	37	W3EA	*	901,700	995	76	279	W9IND	7	65,232	225	24	84	CROATIA					
UA3BL	*	422,784	879	78	306	W5WZ	*	2,400	30	13	19	N3II	*	724,672	644	109	307	KV0Q	A	2,968,400	1711	171	485	9A4KW	A	519,415	808	77	228
JR4DAH	*	360,144	600	88	158	Y02CJX	*	1,161	46	6	21	W3BG	*	631,680	610	86	290	K0KX	*	2,728,736	1572	154	480	9A5Y	21	1,258,863	2775	40	161
N1TM	*	348,300	477	61	209	KP4KE	7	119,520	624	20	76	N3KN	*	496,800	528	74	271	N0KV	*	929,574	929	106	281	(OP: 9A3LG)					
UA9SG	*	336,380	565	72	206	S53D	*	78,430	494	23	92	W3OU	*	352,485	454	83	232	N0AT	*	907,698	628	141	420	CZECH REPUBLIC					
N8IE	*	312,420	487	60	194	TISN	*	40,506	190	17	69	K3AT0	*	202,768	346	60	172	K4IU/0	*	488,949	580	99	250	OK2FD	A	3,716,264	2588	157	619
S59D	*	305,502	665	80	274							W3ZL	*	147,534	291	54	147	K10F	*	305,370	420	86	204	OK1DG	*	697,248	1015	94	338
DF3AX	*	294,680	598	65	200	YU1AAV	*	16,575	166	15	60	N3GNW	*	143,583	259	68	161	W0DK	*	290,788	427	78	200	OK1FDY	*	539,214	860	96	307
EA1GT	*	286,672	567	66	182							NE3H	*	110,250	224	53	157	K0PC	*	199,134	339	54	168	OK1UU	*				

Visit Our Web Site

FACTORY AUTHORIZED REPAIR OF
YAESU KENWOOD ICOM ALINCO

Factory trained technicians using state of the art test gear to insure the highest quality of service for your radio.
 High-Performance Modifications.

1-888-767-9997
 Website & Reconditioned Gear List
<http://www.kk7tv.com>

KK7TV Communications
 2350 W Mission Lane #7, Phoenix, AZ 85021
 Fax: 602-371-0522 Ask For Randy, KK7TV

Your One STOP Service Center

208-852-0830 • Fax: 208-852-0833
<http://rossdist.com>

Visit Our Web Site Often for Limited Time Specials

RDC ROSS DISTRIBUTING COMPANY
 78 S. State Street, Preston, ID 83263
 Hours Tue.-Fri. 9:30-12/2:30-6
 Mon. 9:30-12/2:30-3:30 Closed Sat & Sun

TRAM® browning®
• DISTRIBUTORS WANTED •

→ Increase Your Profits ←

World's Best Selling Amateur Antennas, Mounts, Accessories, Coax and Connectors
 P.O. Box 5056 • Edmond, OK 73013

Radio Setup Guides

Quick Help Mini-References For:
 Kenwood, Icom and Yaesu Radios
 Printed in color • Laminated for durability
Simplified Step-by-Step Procedures
 Short Form Reference Guides are available for most recent model radios.
www.niftyaccessories.com
 760-781-5522
Nifty! Ham Accessories

1-585-591-8149
Custom Ham Hats
Only! \$12.99+S&H
 Special Ends August 31st
www.pennystitch.com

"Specialist in RF Connectors and Coax"

Part No.	Description	Price
PL-259/USA	UHF Male Phenolic, USA made	\$.75
PL-259/AGT	UHF Male Silver Teflon, Gold Pin	1.00 10/\$9.00
UG-21D/U	N Male RG-8, 213, 214 Delta	3.25
UG-21B/U	N Male RG-8, 213, 214 Kings	5.00
9913/PIN	N Male Pin for 9913, 9086, 8214 Fits UG-21 D/U & UG-21 B/UN's	1.50
UG-21D/9913	N Male for RG-8 with 9913 Pin	4.00
UG-21B/9913	N Male for RG-8 with 9913 Pin	6.00
UG-146A/U	N Male to SO-239, Teflon USA	7.50
UG-83B/U	N Female to PL-259, Teflon USA	7.50

The R.F. Connection
 213 North Frederick Ave., #11 CQ
 Gaithersburg, MD 20877 • (301) 840-5477
 800-783-2666 FAX 301-869-3680
www.therfc.com

Celebrating our 20th Year! **Connecting you through the millennium**

Complete Selection Of MIL-SPEC Coax, RF Connectors And Relays

ham shop

Advertising Rates: Non-commercial ads are 20 cents per word including abbreviations and addresses. Commercial and organization ads are \$1.00 per word. Boldface words are \$1.50 each (specify which words). Minimum charge \$2.00. No ad will be printed unless accompanied by full remittance. All ads must be typewritten double-spaced.

Closing Date: The 10th day in the third month preceding date of publication (example: Jan. 10th for the March issue). Because the advertisers and equipment contained in Ham Shop have not been investigated, the Publisher of CQ cannot vouch for the merchandise listed therein. The publisher reserves the right to reject any advertisement. Direct all correspondence and ad copy to: CQ Ham Shop, 25 Newbridge Road, Hicksville, NY 11801 (fax: 516-681-2926; e-mail: <hamshop@cq-amateur-radio.com>).

CB-TO-10M CONVERSIONS: Frequency modifications, FM, books, plans, kits, high-performance CB accessories. Catalog \$3. CBCI, Box 30655CQ, Tucson, AZ 85751. <www.cbintl.com>

QSLing SUPPLIES. e-mail: <plumdx@msn.com>.

QSLs FOR DX STATIONS: Our new "International Division" was established to handle QSL needs of DX hams. We understand the problems of packaging, shipping, and dealing with the customs problems. You can trust us to deliver a quality QSL, usually much cheaper than you can find locally. Write, call, or FAX for free samples and ordering information. "The QSL Man—W4MPY," 682 Mount Pleasant Road, Monetta, SC 29105 USA. Phone or FAX 803-685-7117.

"QRZ DX"—since 1979: Available as an Adobe PDF file each Wednesday or by regular mail. Your best source for weekly DX information. Send #10 SASE for sample/rates. **"The DX Magazine"—since 1989:** Bi-monthly—Full of DXpedition reports, QSL Information, Awards, DX news, technical articles, and more. Send \$3.00 for sample/rates. DX Publishing, Inc., P.O. Box DX, Leicester, NC 28748-0249. Phone/Fax: 828-683-0709; e-mail: <DX@dxpub.com>; WEB PAGE: <http://www.dxpub.com>.

CERTIFICATE for proven contacts with all ten American districts. SASE to W6DDB, 45527 Third Street East, Lancaster, CA 93535-1802.

TRYLON SELF-SUPPORTING TOWERS: Delivered ANYWHERE in the US for ONLY \$261.00. This is the BEST tower value around—96 feet for only \$2451.00 DELIVERED TO YOUR QTH! Go to <www.championradio.com> or call 888-833-3104 for more information.

<http://www.seaqlmaui.com>

ALUMINUM CHASSIS AND CABINET KITS, UHF-VHF Antenna Parts, Catalog. E-mail: <k3iww@flash.net> or <http://www.flash.net/~k3iww>.

KK7TV COMMUNICATIONS: See our display ad.

NAME BADGES BY GENE: In full color, our artwork or yours. See our web page for samples and prices. www.hampubs.com Harlan Technologies 815-398-2683.

REAL HAMS DO CODE: Move up to CW with **CW Mental Block Buster III**. Succeed with hypnosis and NLP. Includes two (2) CDs and Manual. Only \$29.95 plus \$5.00 s/h US. FL add \$2.14 tax. Success Easy, 7300 West Camino Real, Suite 218, Boca Raton, FL 33433, 800-425-2552, <www.success-is-easy.com>.

NEAT STUFF! DWM Communications— <http://qth.com/dwm>

PACKET RADIO AND MORE! Join TAPR, connect with the largest amateur radio digital group in the U.S. Creators of the TNC-2 standard, working on Spread Spectrum technology. Benefits: newsletter, software, discounts on kits and publications. For membership prices contact TAPR, 8987-309 E. Tanque Verde Road, #337, Tucson, AZ 85749-9399 (phone 940-383-0000; fax 940-566-2544; internet <tapr@tapr.org>; web: <http://www.tapr.org>).

WANTED: HAM EQUIPMENT AND RELATED ITEMS. Donate your excess gear—new, old, in any condition—to the Radio Club of Junior High School 22, the Nation's only full time non-profit organization working to get Ham Radio into schools around the country as a teaching tool using our EDUCOM—Education Thru Communication—program. Send your radio to school. Your donated material will be picked up ANYWHERE or shipping arranged, and this means a tax deduction to the full extent of the law for you as we are an IRS 501(c)(3) charity in our 18th year of service. It is always easier to donate and usually more financially rewarding, BUT MOST IMPORTANT your gift will mean a whole new world of educational opportunity for children nationwide. Radios you can write off; kids you can't. Make 2001 the year to help a child and yourself. Write, phone, or FAX the WB2JKJ "22 Crew" today: The RC of JHS 22, P.O. Box 1052, New York, NY 10002. Twenty-four hours call 516-674-4072; fax 516-674-9600; or e-mail <crew@wb2jkj.org>. Join us on the WB2JKJ Classroom Net, 7.238 MHz, 1200-1330 UTC daily and 21.395 MHz from 1400 to 2000 UTC.

IMRA-International Mission Radio Assn. helps missionaries—equipment loaned; weekday net, 14.280 MHz, 1:00-3:00 PM Eastern. Sr. Noreen Perelli, KE2LT, 2755 Woodhull Ave., Bronx, NY 10469.

PHASED ARRAY NETWORKS by COMTEK SYSTEMS deliver gain and front to back. Call 704-542-4808; fax 704-542-9652. COMTEK SYSTEMS, P.O. Box 470565, Charlotte, NC 28247.

HF VERTICAL COMPARISON REPORT: K7LXC and N0AX test Cushcraft, Butternut, MFJ, Force 12, Hustler, Gap, and Diamond verticals. 64-page report includes protocol, data sets, and summaries. \$17 plus \$4 s/h. <www.championradio.com>, 888-833-3104.

3200+ DIFFERENT AWARDS from 128 DXCC countries. Complete data online at <http://www.dxawards.com>. One year full access just \$6. Ted Melinosky, K1BV, 12 Wells Wood Road, Columbia, CT 06237-1525.

DXPEDITIONS on DVD! Contest and DXpedition videos by 9V1YC. 7 different titles now available on both DVD and VHS! VK0IR Heard, ZL9CI Campbell, FO0AAA Clipperton, A52A Bhutan, VP8THU South Sandwich, VP8GEO South Georgia, and WRTC 2002 Finland. \$25 each, shipping included. VISA/MC, paypal, or check. Contact Charlie Hansen, N0TT, 8655 Hwy D, Napoleon, MO 64074, or call 816-690-7535; e-mail: <n0tt@juno.com>.

CASH FOR COLLINS, HALLICRAFTERS SX-88, & DRAKE TR-6. Buy any Collins equipment. Leo, KJ6HI, phone/fax 310-670-6969, e-mail: <radioleo@earthlink.net>.

QRP Now! Today's hottest book on QRP rigs, kits, accessories, contests, DXing tips, and more! Or, **KEYS II** views & info on world's most exotic keys. Either book \$16 + \$3 Priority Mail. Dave Ingram, K4TWJ, 4100 S. Oates St. #906, Dothan, AL 36301.

RF TRANSISTORS, ALUMINUM BOXES, COPPER BOARDS, HEAT SINKS, BASE STATIONS, ETC. Westgate Labs, 800-213-4563. See the new additions to our web site: <www.westgateparts.com>

advertiser's index

now including websites

AOR U.S.A., Inc.	77	www.aorusa.com
Advanced Specialties, Inc.	54	www.advancedspecialties.net
Alan Broadband Co.	114	www.zapchecker.com
Alinco	43	www.alinco.com
Alpha Delta Communications, Inc.	67	www.alphadeltacom.com
Alpha Radio Products, LLC	49	www.alpharadioproducts.com
Aluma Towers	113	www.alumatower.com
Ameritron	53	www.ameritron.com
Amidon Associates	81	www.amidon-inductive.com
Antique Radio Classified	84	www.antiqueradio.com
Astron Corporation	87	www.astroncorp.com
Atomic Time, Inc.	83	www.atomictime.com
BATTERIES AMERICA/Mr. Nicd.	115	www.batteriesamerica.com
Battery Tech, Inc.	69	www.ebatterytech.com
Bilal Co./Isotron Antennas	29	www.isotronantennas.com
Burghardt Amateur Center	97	www.burghardt-amateur.com
Butternut Antennas	34	www.bencher.com
C.A.T.S.	113	www.rotor-doc.com
Comet Antennas/NCG	9	www.natcommgroup.com
Command Productions	46	www.LicenseTraining.com
Communication Concepts Inc.	71	www.communication-concepts.com
CQ Bookstore	47,65	www.cq-amateur-radio.com
Cubex Quad Antennas	84	www.cubex.com
Cutting Edge Enterprises	29,85,98	www.powerportstore.com
DVD Industries, LLC	113	www.hamlookup.com
DX Engineering	71	www.dxengineering.com
DX4WIN (Rapidan Data Systems)	98	www.dx4win.com
Elecraft	85	www.elecraft.com
Ham Radio Outlet	12,116	www.hamradio.com
Ham T-Shirts by WA4QKV	89	www.jimwhitlockart.com
HamTestOnline	114	www.hamtestonline.com
Hy-Gain	1,5	www.hy-gain.com
ICOM America, Inc.	3,33,35,105,Cov 4	www.icomamerica.com
K2AW's "Silicon Alley"	98	
K-Y Filter Company	97	www.ky-filters.com/cq.htm
KK7TV Communications	112	www.kk7tv.com
Kanga US	84	www.bright.net/~kanga/kanga/
Kenwood U.S.A. Corporation	Cov. II	www.kenwood.net
LDG Electronics, Inc.	25	www.ldgelectronics.com
LOG Window from SCO, Inc.	97	www.logwindow.com
M ² Antenna Systems, Inc.	93	www.m2inc.com
MFJ Enterprises, Inc.	21,37	www.mfjenterprises.com
MicroHAM	69	www.microham.com



Virginia Beach Hamfest

ARRL Roanoke
Division Convention
September 17 & 18, 2005
Virginia Wesleyan College
1584 Wesleyan Drive
Virginia Beach, VA 23462

"See You at the Beach"

www.vahamfest.com

Aluminum Towers

Over 20 Years Experience in Meeting
Amateur & Commercial Tower Needs.

- Crank-up Towers 40' to 100'
- All Aluminum Construction
- Light-Weight-Easy to Install

ALUMA
TOWER COMPANY, INC.

P.O. Box 2806-CQ
Vero Beach, Florida 32961 USA
e-mail: atc@alumatower.com
http://www.alumatower.com
Voice (772)567-3423 Fax (772)567-3432



Turbo Tuner

**Automatic
Screwdriver
Antenna
Controller**

icom IC-706
Kenwood TS-480

888-450-2632
WWW.N2VZ.COM
BILL@N2VZ.COM
N2VZ Enterprises



In a Tight Spot?
SMALL BEAM...BIG SIGNAL

HEX-BEAM®

Traffie Technology

421 JONES HILL ROAD ASHBY, MA 01431-1801
www.hexbeam.com



ROTORS

**ROTOR
DOCTOR**

Rotors, Parts and Repair Service
Reconditioning Large or Small
American Made Rotors
Repair-\$50.00* Rebuild-\$100.00*
All parts in stock for immediate
delivery. New units for sale.
Trade-ins welcome.
*LABOR ONLY-PARTS & SHIPPING ADDITIONAL

PARTS

C.A.T.S.
7368 S.R. 105
Pemberville,
OH 43450
Contact N8DJB
craig@rotor-doc.com
www.rotor-doc.com
419-353-CATS
Fax: 419-354-SPIN

ham lookup

CALLBOOK CDROM for WINDOWS and LINUX

free upgrades - fast and powerful searching - easy
to use, modern interface - great for QSL, contesting
ragchew, logging, net-control - free delivery!

only \$17.95

(U.S. residents add 5% tax)

Send Check or M.O. to: DVD INDUSTRIES, LLC
P.O. BOX 440 • BEALETON, VA 22712

www.hamlookup.com

BROADBAND SIGNAL STRENGTH METER 3MHz - 5GHz

- Linear & Logarithmic Amplification
- Analog & Digital Detection • Silent Vibrator
- Analog Meter & LED Displays

MODEL ZC185 - \$159.00

Alan Broadband Company
Phone (650) 369-9627, Fax (650) 369-3788

www.zapchecker.com

HamTestOnline™

online study for the written exams

- ▶ Better than random practice tests.
- ▶ Presents concepts in logical order.
- ▶ Tracks progress for each question.
- ▶ Uses "intelligent repetition".

Guaranteed Success!

www.hamtestonline.com

THE QSL MAN®

Since 1979, Quality, Service, and Value!

Free samples

Wayne Carroll, W4MPY

P.O. Box 73

Monetta, SC 29105-0073

Phone or FAX (803) 685-7117

URL: <http://www.qslman.com>

Email: w4mpy@qslman.com

CALL (800) 727-WIRE (9473)

**That's All You Need to Know About
Wire, Cable and Accessories!**

20 Years of Quality & Service!

Web Site: <http://www.thewireman.com>

Email: n8ug@thewireman.com

TECHNICAL HELP: (864) 895-4195

THE WIREMAN™ INC.

**Learn from
the experts.**



Order your



**Books, Calendars
& Videos
Today!**

See our ad on pages 47

BUX COMM: Have you seen the New RASCAL GLX (see it at www.packetradio.com), PSK31, and SSTV sound card interface? Antennas, Accessories, and HAM Radio Goodies at DISCOUNT PRICES. Orderline Monday-Friday, 11 AM to 4 PM, 434-534-8873. On the web visit www.BUXcomm.com.

TRIBANDER COMPARISON REPORT: Find out the real story on tribander performance. K7LXC and N0AX test more than a dozen antennas, including Force 12, Hy-Gain, Mosley, Bencher, and Cushcraft. 84-page report includes protocol, data sets, and summaries. \$17 plus \$4 s/h. www.championradio.com or 888-833-3104.

FOR SALE: CQ/Ham Radio/QST/73 magazines and binders. SASE brings data sheet. W6DDB, 45527 Third Street East, Lancaster, CA 93535-1802.

TOWER HARDWARE, SAFETY EQUIPMENT, weatherproofing, T-shirts, and MORE. Champion Radio Products, telephone 888-833-3104, or www.championradio.com.

WANTED: VACUUM TUBES - Commercial, industrial, amateur. Radio Daze, LLC, 7620 Omnitel Place, Victor, NY 14506 USA (phone 585-742-2020; fax 800-456-6494; e-mail: info@radiodaze.com).

SMART BATTERY CHARGERS Kits & Assemblies, Surplus Parts, and more. www.a-aengineering.com

SATELLITE EQUIPMENT: C and Ku Band equipment. www.daveswebshop.com

WWW.PEIDXLODGE.COM

WANTED: Early Microprocessors, e.g.: KIM's, SYM's, AIM's, SOL's, OSI's. Also: UNIMAT & Watchmaker Lathes & ATMOS Clocks. John Rawley, 1923 Susquehanna, Abington, PA 19001; phone 215-884-9220; e-mail: johnR750@aol.com.

NEAT STUFF! DWM Communications — <http://qth.com/dwm>

KA2RIT Computer parts & accessories at www.globalcomputer2000.com, phone 973-372-8300, fax 973-372-8818, info@globalcomputer2000.com.

DIRECTIONAL ANTENNAS MADE SIMPLE. Excellent for 160/80/40m. WWW.BROADCASTBOOKS.COM

CALL-MASTER CALLSIGN DATABASE \$25.00 SHIPPED. Complete US/VE/DX listings. Use with our Prolog2K Logger or stand-alone. Secure order on our website at www.prolog2k.com or call toll free 1-800-373-6564. DataMatrix

AWARDS TRACKING SOFTWARE BY N4YB to cover the JCC, JCG Awards and the Canadian Islands Award is now available. Each program furnished on CD at a cost of \$10.00 ea. plus \$3.00 shipping within the US/Canada and \$4.00 elsewhere. Purchase by check or money order at James L. Gatlin, 10700 US Hwy 301 South, Benson, NC 27504; N4YB@earthlink.net; tel. # 919-894-3484.

RADIALWAVE Ground Radial System for vertical HF antennas and accessories. Visa, Mastercard, Discover, and American Express. www.radialwave.com, 214-532-9857.

DX TIPS BOOK lists dozens of suggestions from top DXers. \$10.00 postpaid to: W1HEO, 9901 Cypress Circle, Mentor, OH 44060.

ICOM 781 needs CRT display. Make offer. W8UPY, Sam Martorello, 13634 Rybak Ave., Garfield Hts., OH 44125 (216-475-4174).

FOR SALE: Heath SB-200/SA-2060. \$220/\$145. Boxed Ameritron AL-80B Amp, MFJ-989C Tuner, \$950/\$155. Pick up only. WA2KHK, 772-871-5831.

**If you enjoy Amateur Radio,
you'll enjoy CQ**



It's a different kind of ham magazine.

Fun to read, interesting from cover to cover, written so you can understand it. That's CQ. Read by thousands of people each month in 116 countries around the world.

It's more than just a magazine. It's an institution.

CQ also sponsors these fourteen world-famous award programs and contests: The CQ World-Wide DX Phone and CW Contests, the CQ WAZ Award, the CQ World-Wide WPX Phone and CW Contests, the CQ World-Wide VHF Contest, the CQ USA-CA Award, the CQ WPX Award, the CQ World-Wide 160 Meter Phone and CW Contests, the CQ World-Wide RTTY Contest, the CQ 5 Band WAZ Award, the CQ DX Award, and the highly acclaimed CQ DX Hall of Fame.

Also available in the Spanish language edition. Write for rates and details.

	USA	VE/XE	Foreign
1 Year	31.95	44.95	56.95
2 Years	57.95	83.95	107.95
3 Years	83.95	122.95	158.95

Please allow 6-8 weeks for delivery of first issue

**SUBSCRIBE
TODAY!**

**CQ Magazine, 25 Newbridge Rd., Hicksville, NY 11801
Phone 516-681-2922 FAX 516-681-2926**

advertiser's index

now including websites

Mil Spec Radio Gear	38	www.cq-amateur-radio.com
Misty Hollow Enterprises	79	www.mistyhollowenterprises.com
N2VZ Enterprises	113	www.n2vz.com
Nemal Electronics International	36	www.nemal.com
Netcertus Inc.	96	http://ampsc.netcertus.com
Nifty! Ham Accessories	112	www.niftyaccessories.com
Palomar Engineers	29	www.palomar-engineers.com
Palstar, Inc.	39	www.alpharadioproducts.com
Penny's Stitch n' Print	112	www.pennystitch.com
PowerPort	29,85,98	www.powerportstore.com
QCWA	98	www.qcwa.org
QSLs by W4MPY	114	www.w4mpy.com
RF Connection	112	www.therfc.com
RF Parts Company	45	www.rfparts.com
RT Systems	85	www.cloningsoftware.com
Radio Club of J.H.S. 22	70	www.wb2jkj.org
Radio Daze	96	www.radiodaze.com
Radio Works	83	www.radioworks.com
Rapidan Data Systems (DX4WIN)	98	www.dx4win.com
Ross Distributing Company	112	http://rossdist.com
SGC, Inc.	11	www.sgcworld.com
Saratoga A.R. Products	51	www.saratogaham.com
SteppIR Antennas	55	www.steppir.com
Surplus Sales of Nebraska	84	www.surplussales.com
T.G.M. Communications	96	www3.sympatico.ca/tgmc/index.html
Tarheel Antennas	36	www.tarheelantennas.com
TEN-TEC, Inc.	15,93	www.tentec.com
Texas Towers	58,59	www.texastowers.com
Tram-Browning	112	
Traffie Technology	113	www.hexbeam.com
Universal Radio, Inc.	85,97	www.universal-radio.com
Vibroplex	69	www.vibroplex.com
Virginia Beach Hamfest	113	www.vahamfest.com
W4RT Electronics	89	www.w4rt.com
W5YI Group	73	www.w5yi.org
West Mountain Radio	61	www.westmountainradio.com
Wireman, The	114	www.thewireman.com
Yaesu	6,7,Cov III	www.vxstdusa.com

It's easy to advertise in CQ.
Let me know what I can do to help.
Don Allen, W9CW
(217) 344-4570 or FAX (217) 344-4575
e-mail:ads@cq-amateur-radio.com

BATTERIES AMERICA Ph:800-308-4805

Summer 2005 Specials (Order ONLINE too)

www.batteriesamerica.com

(We have many more items for sale on our website!)

For Yaesu-Vertex VX-7R, VX-7Rb, VXA-700 : (LI-ION)

FNB-80Li LI-ION pack 7.4v 1400mAh **\$39.95**

For Yaesu-Vertex VX-5R, VX-5Rs : (LI-ION)

FNB-58Li LI-ION pack 7.2v 1400mAh **\$39.95**

For Yaesu-Vertex FT-60R, VX-110, 150, 210, VXA-120 etc

FNB-V57x Ni-MH pack 7.2v 2000mAh **\$39.95**

For Vertex Standard VX-2R : (LI-ION - designed for the VX-2R)

FNB-82Li LI-ION pack 3.7v 1070mAh **\$29.95**

For YAESU - Vertex FT-817 (Backpacker Radio) :

FNB-72xh Ni-MH pack 9.6v 2500mAh **\$49.95**

For YAESU FT-50/R/D / 40R / 10R / VXA-100 etc: (w/ clip)

FNB-41xs SW Ni-MH pk 9.6v 1450mAh **\$54.95**

For YAESU FT-11R / 41R / 51R : (Factory Brand Packs I)

FNB-38xh SW Ni-MH 9.6v 1450mAh **\$49.95**

FNB-38 SW Ni-Cd pack 9.6v 600mAh **\$29.95**

FNB-31 Ni-Cd pack 4.8v 600mAh **\$19.95**

For YAESU FT-530 / 416 / 415 / 816 / 76 / 26 etc :

FNB-25x Ni-MH pack 7.2v 1100mAh **\$28.95**

FNB-27xh SW Ni-MH 12.0v 1250mAh **\$44.95**

For YAESU FT-411 / 470 / 73R / 33R / 23R etc :

FNB-10 Ni-Cd pack 7.2v 800mAh **\$20.95**

FBA-10 6-Cell AA case **\$14.95**

For ICOM IC- V8 etc: (BP-210 includes belt clip) **LONG LIFE**

BP-210 6w Ni-MH pack 7.2v 2000mAh **\$39.95**

CBE-210 Batt. Eliminator (12V Mobile use) **\$25.95**

NEW for ICOM IC- T90 etc: (Lithium ION - NEW)

BP-217 SW LI-ION pack 7.4v 1400mAh **\$39.95**

EMS-217 Desktop Rapid Charger for BP-217 **\$39.95**

For ICOM IC- T8A, T8A-HP, T81A : (BOTH w/ belt clip)

BP-200XL 5w Ni-MH pk 9.6v 1450mAh **\$54.95**

BP-197h 6-cell AA Battery case **\$29.95**

For ICOM IC-Z1A, T22A, T42A, W31A, W32A, T7A :

BP-173x SW Ni-MH pk 9.6v 1450mAh **\$55.95**

BP-170L 6-cell AA Battery case **\$25.95**

For ICOM IC-W21A, V21AT, 2GXAT choose Black or Grey:

BP-157x / BP-131h 7.2v 1650mAh **\$28.95**

For ICOM IC-02AT etc & Radio Shack HTX-202 / 404 :

BP-8h SW Ni-Cd pack 8.4v 1400mAh **\$32.95**

BP-202h pack (HTX-202) 7.2v 1400mAh **\$29.95**

IC-8 8-cell AA case (w/ Charge Jack I) **\$22.95**

For KENWOOD TH-F6A / F7: (Lithium ION & Charger I)

PB-42L LI-ION pack 7.4v 1800mAh **\$39.95**

PB-42XL LI-ION pack 7.4v 3600mAh **\$59.95**

EMS-42K Desktop Rapid Charger for PB-42L/XL **\$39.95**

For KENWOOD TH-G71 / K, TH-D7A : (w/ Belt Clip, NEW)

PB-39h SW Ni-MH pack 9.6v 1450mAh **\$54.95**

For KENWOOD TH-79A, TH-42A, TH-22A etc :

PB-34xh SW Ni-MH pack 9.6v 1200mAh **\$39.95**

For KENWOOD TH-235A etc. (Hard-to-find I) :

PB-36 Ni-Cap, Ni-MH pack 7.2v 1650mAh **\$29.95**

For KENWOOD TH-78A / 48 / 28 / 27 etc :

BT-8 AA Battery Case (holds 6 x AA cells) **\$14.95**

PB-17x 5-Watt Ni-MH pk 12.0v 1300mAh **\$39.95**

BC-15A KENWOOD brand Fast Charger **\$32.95**

For KENWOOD TH-77A, 75, 55, 46, 45, 26, 25 etc :

PB-6x (Ni-MH, w/chg jack) 7.2v 1600mAh **\$34.95**

PB-8xh SW Ni-MH w/jack 12.0v 1650mAh **\$44.95**

For KENWOOD TH-205 / 215 / 225 / 315 etc :

PB-2h (Ni-Cd, w/chg jack) 8.4v 800mAh **\$29.95**

For KENWOOD TR-2500 / 2600 : (Wall charger: \$ 12.95 ea)

PB-25s (Ni-Cd, w/ jack) 8.4v 800mAh **\$29.95**

For ALINCO DJ-V5, DJ-V5TH : (includes belt clip)

EBP-46h SW Ni-MH pk 9.6v 1450mAh **\$49.95**

For ALINCO DJ-195,HP,R / 196 / 446 / 493 / 496 / 596 etc :

EBP-48h SW Ni-MH pk 9.6v 2000mAh **\$39.95**

For ALINCO DJ-G5TD,TH,TY / 190T, 191T,TD,TH: NEW!

EBP-36xh SW Ni-MH pk 9.6v 1450mAh **\$52.95**

For ALINCO DJ-580 / 580T / 582 / 180 / 280T / 480 etc :

EBP-22xh SW Ni-MH pk 12.0v 1800mAh **\$42.95**

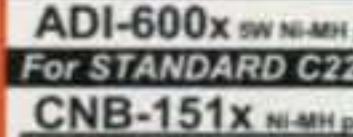
EBP-20xh Ni-MH pk 7.2v 1800mAh **\$29.95**

For ADI AT-600 & REALISTIC HTX-204 (for 5-Watt TX):

ADI-600x SW Ni-MH pk 12.0v 1200mAh **\$39.95**

For STANDARD C228, C528, C558; ADI HT-201, 401 etc:

CNB-151x Ni-MH pack 7.2v 1800mAh **\$29.95**



NEW - the V-1000 Digital Charger
for AA & AAA batteries! **\$17.95 ea.**

- (1) Fast-Smart Charger for 2 - 4 AA or AAA Ni-MH or Ni-Cd cells, w/Auto Shut-off!
- (2) Comes with AC power supply AND 12VDC power cord for home & mobile operation!
- (3) Provides safe, quick 2 - 3 hour charge!
- (4) Easy-to-read LED charge status indicators.

SANYO AA Ni-MH 2300mAh cells - SALE \$2.50 ea.

Mail, E-mail, Phone, or Fax order! Use MC, VISA, DISC, or AMEX

Call, write, e-mail, or Fax us for our **FREE CATALOG!**

BATTERIES AMERICA 2211-D Parview Rd., Middleton, WI 53562

Order Toll Free: 1-800-308-4805

Fax: 608-831-1082 E-mail: ehvost@chorus.net

12 STORE BUYING POWER



HAM RADIO OUTLET

WORLDWIDE DISTRIBUTION

MANUFACTURER'S DAY - 8/13!

Special one day only pricing at ALL 12 HRO STORES

Salem only: Hourly Prizes -

- Meet Mfr. Reps -

- See the latest gear -

- Refreshments -

10 am-5:30 pm

(w/ purchase necessary)

ANAHEIM, CA
(Near Disneyland)
933 N. Euclid St., 92801
(714) 533-7373
(800) 854-6046
Janet, KL7MF, Mgr.
anaheim@hamradio.com

BURBANK, CA
2416 W. Victory Bl., 91506
(818) 842-1786
(800) 854-6046
Eric, KA6IHT, Mgr.
Victory Blvd. at Buena Vista
1 mi. west I-5
burbank@hamradio.com

OAKLAND, CA
2210 Livingston St., 94606
(510) 534-5757
(800) 854-6046
Mark, W17YN, Mgr.
I-880 at 23rd Ave. ramp
oakland@hamradio.com

SAN DIEGO, CA
5375 Kearny Villa Rd., 92123
(858) 560-4900
(800) 854-6046
Tom, KM6K, Mgr.
Hwy. 163 & Claremont Mesa
sandiego@hamradio.com

SUNNYVALE, CA
510 Lawrence Exp. #102, 94085
(408) 736-9496
(800) 854-6046
Rick N6DQ, Co-Mgr.
Howard, W6HOC, Co-Mgr.
So. from Hwy. 101
sunnyvale@hamradio.com

NEW CASTLE, DE
(Near Philadelphia)
1509 N. Dupont Hwy., 19720
(302) 322-7092
(800) 644-4476
Rick, K3TL, Mgr.
RT.13 1/4 mi., So. I-295
newcastle@hamradio.com

PORTLAND, OR
11705 S.W. Pacific Hwy.
97223
(503) 598-0555
(800) 854-6046
Leon, W7AD, Mgr.
Tigard-99W exit
from Hwy. 5 & 217
portland@hamradio.com

DENVER, CO
8400 E. Iliff Ave., #9, 80231
(303) 745-7373
(800) 444-9476
Joe, KD0GA, Co-Mgr.
John, N5EHP, Co-Mgr.
denver@hamradio.com

PHOENIX, AZ
1939 W. Dunlap Ave., 85021
(602) 242-3515
(800) 444-9476
Gary, N7GJ, Mgr.
1 mi. east of I-17
phoenix@hamradio.com

ATLANTA, GA
6071 Buford Hwy., 30340
(770) 263-0700
(800) 444-7927
Mark, KJ4VO, Mgr.
Doraville, 1 mi. no. of I-285
atlanta@hamradio.com

WOODBIDGE, VA
(Near Washington D.C.)
14803 Build America Dr. 22191
(703) 643-1063
(800) 444-4799
Steve, N4SR, Mgr.
Exit 161, I-95, So. to US 1
woodbridge@hamradio.com

SALEM, NH
(Near Boston)
224 N. Broadway, 03079
(603) 898-3750
(800) 444-0047
Chuck, N1UC, Mgr.
sales@hamradio.com
Exit 1, I-93;
28 mi. No. of Boston
salem@hamradio.com

* Yaesu Coupons Expire 9-30-05

* T-shirt mail in with proof of purchase

** Free Yaesu Hat at time of purchase

CALL FOR YAESU SUMMER SPECIALS



FT-897D VHF/UHF/HF Transceiver

- HF/6M/2M/70CM • DSP Built-in
- HF 100W (20W battery)
- Optional P.S. + Tuner • TCXO Built-in

Call Now For Our Low Pricing!



FT-1000MP MKV HF Transceiver

- Enhanced Digital Signal Processing * Not including 60M band
- Dual RX
- Collins SSB filter built-in
- 200W, External power supply

NEW Low Price!



FT-8800R 2M/440 Mobile

- V+U/V+V/U+U operation
- V+U full duplex • Cross Band repeater function
- 50W 2M 35W UHF
- 1000+ Memory channels
- WIRES ready

Call Now For Low Pricing!



FT-817ND HF/VHF/UHF TCVR

- 5W @13.8V ext DC • USB, LSB, CW, AM, FM
- Packet (1200/9600 Baud FM) • 200 mems
- built in CTCSS/DCS • TX 160-10M, 6M, 2M, 440
- Compact 5.3" x 1.5" x 6.5", 2.6 lbs
- FNB-85 NiMH battery + NC-72B included

Call Now For Low Pricing!

FT-60R

- 2m/440 HT
- 5W Wide-band receive
- CTCSS/DCS Built-in
- Emergency Auto ID

Low Price!



VX-7R/VX-7R Black

- 50/2M/220/440 HT
- Wideband RX - 900 Memories
- 5W TX (300mw 220Mhz)
- Li-Ion Battery
- Fully Submersible to 3 ft.
- Built-in CTCSS/DCS
- Internet WIRES compatible

Now available in Black!
NEW Low Price!

VX-6R

- 2M/220/440HT
- wideband RX - 900 memories
- 5W 2/440, 1.5W 220 MHz TX
- Li-ION Battery - EAI system
- Fully submersible to 3 ft.
- CW trainer built-in

NEW Low Price!



VX-150

- 2M Handheld
- Direct Keypad Entry
- 5w output
- 209 memories
- Ultra Rugged

Call Now For Special Pricing!



FT-857D

- Ultra compact HF, VHF, UHF
- 100w HF/6M, 50w 2M, 20w UHF
- DSP included • 32 color display
- 200 mems • Detachable front panel (YSK-857 required)

Call for Low Price!



FT-7800R 2M/440 Mobile

- 50w 2m, 40w on 440mhz
- Weather Alert
- 1000+ Mems
- WIRES Capability
- Wideband Receiver (Cell Blocked)

Call Now For Your Low Price!



FT-2800M 2M Mobile

- 65w • Ruggedly Built
- Alpha Numeric Memory System
- Direct Keypad Frequency Entry
- Bullet-proof Front End

Call Now For Low Pricing!



FT-8900R Quadband Transceiver

- 10M/6M/2M/70CM • Wires capable
- 800+ memories • Built-in CTCSS/DCS
- Remotable w/optional YSK-8900

Call Now For Special Pricing

AZ, CA, CO, GA,
VA residents add
sales tax. Prices,
specifications,
descriptions,
subject to change
without notice.

Look for the
HRO Home Page
on the
World Wide Web
<http://www.hamradio.com>

COAST TO COAST
FREE SHIPPING
UPS - Most Items Over \$100
Rapid Deliveries From
The Store Nearest To You!



Go Field with HOT GEAR



**HF/VHF/UHF Portable Operation
Just Got a Lot More Powerful!**

FT-897D

HF/50/144/430 MHz
100 W All Mode Transceiver
(144 MHz 50 W/430 MHz 20 W)

TCXO DSP 60 m Band



**HF/VHF/UHF Multimode Mobile
Transceiver, now Including Built-in
DSP and 60-Meter Coverage!**

FT-857D

HF/50/144/430 MHz
100 W All Mode Transceiver
(144 MHz 50 W/430 MHz 20 W)

DSP 60 m Band



**REAL PERFORMANCE,
REALLY PORTABLE**

FT-817ND

HF/50/144/430 MHz
5 W All Mode Transceiver (AM 1.5 W)

60 m Band

ATAS-25 Manually-Tuned Portable Antenna

ATAS MICRO



Automatic Matching for FT-897/857 Series Transceivers



•Operational on 1.8 ~ 54 MHz
when used with 66' (or longer)
wire, or 7~ 54 MHz with standard
8.2' whip antenna (wire/whip
antenna not supplied).
•Required Drive Power: 4 ~ 60
Watts. Maximum TX Power: 100
Watts.

FC-40
Automatic-Matching
200-Memory
Antenna Tuner

WATERPROOF

Mobile Auto-Resonating 7~430 MHz for FT-897/857 Series Transceivers



ATAS-120A
Active Tuning
Antenna System
(no separate tuner required)

VHF/UHF Base Radial Kit
ATBK-100 for ATAS-120A.

Free YAESU Original T-SHIRT with FT-897D or FT-857D or FT-817ND purchase

Buy a new FT-897D or FT-857D or FT-817ND
between now and September 30, 2005 and
receive an YAESU Original T-shirt free! See your
Authorized YAESU Amateur Products Dealer
for details.

For the latest Yaesu news, visit us on the Internet:
<http://www.vxstdusa.com>

Specifications subject to change without notice. Some accessories
and/or options may be standard in certain areas. Frequency
coverage may differ in some countries. Check with your local
Yaesu Dealer for specific details.



YAESU
Choice of the World's top DX'ers™

Vertex Standard
US Headquarters
10900 Walker Street
Cypress, CA 90630 (714)827-7600

GO DIGITAL

Thinking about getting into Digital? Icom leads the industry in bringing Digital technology to amateur radio. Go Digital! Go Icom! Now available at your authorized Icom dealer.

NEW IC-V82

2M @ 7W • Optional D-STAR format digital unit for voice and data communication! Features include callsign calling, up to 20 character text message, position exchange* • CTCSS/DTCS encode/decode w/tone scan • desktop trickle charger • Also available in a 70CM version (IC-U82) • And much more!

NEW ID-800

2M/70CM @ 55W/50W • D-STAR format digital unit for voice and data communication! Features include callsign calling, up to 20 character text message, position exchange* • CTCSS/DTCS encode/decode w/tone scan • detachable control head • And much more!

IC-2200H

• 2M @ 65W • 207 alphanumeric memories • Optional D-STAR format digital unit for voice and data communication! Features include callsign calling, up to 20 character text message, position exchange* • CTCSS & DTCS encode/decode w/tone scan • weather alert • And much more!

AMATEUR

AVIONIC

LAND MOBILE

MARINE

RECEIVER

SYSTEMS

WWW.ICOMAMERICA.COM

ICOM

*When connected to an external GPS. ©2005 Icom America Inc. The Icom logo is a registered trademark of Icom Inc. All specifications are subject to change without notice or obligation. 7468